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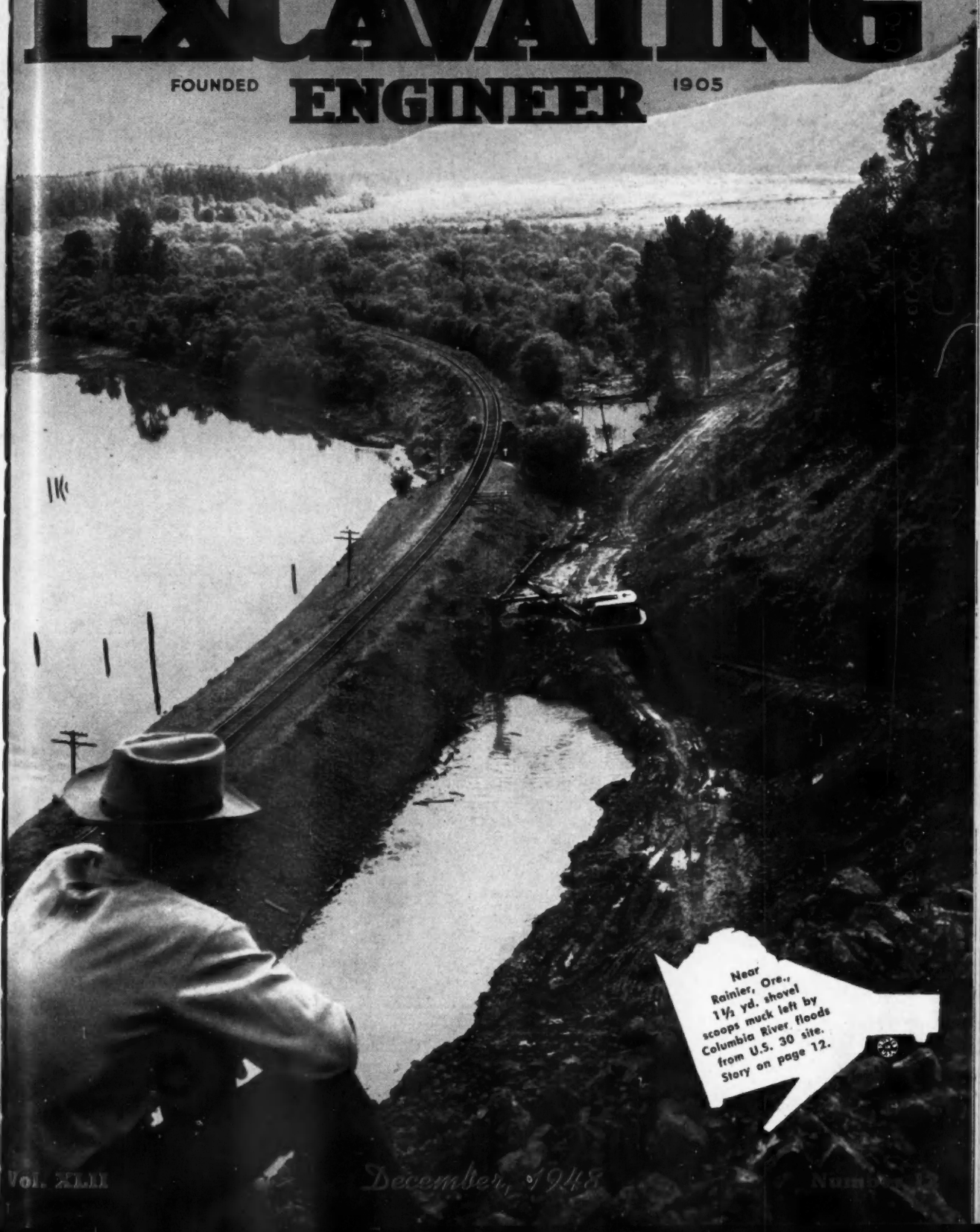
EXCAVATING ENGINEER

FOUNDED 1905

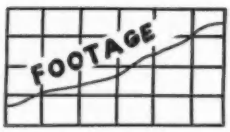


Near Rainier, Ore., 1½ yd. shovel scoops muck left by Columbia River floods from U.S. 30 site. Story on page 12.

Vol. XLII December, 1948 Number

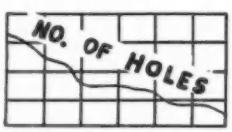
Here's How

Bucyrus-Erie Blast Hole Drills Can Save You *Money!*



There is a marked increase in footage because accurately-timed shock-absorbed drilling and properly fitted tool weights bring sharp drilling blows that lead to high-speed penetration. Quick pick-up of tools helps, too . . . adds to drilling effectiveness by permitting a maximum number of blows per minute.

Several features help boost working time . . . full-length caterpillar mountings for fast moves between drilling sites; permanently attached stabilizing jacks for speedy set-ups; built-in tool wrenches (available on all except the 22-T) for easy tool changes.



Because of their ability to drill larger holes (5⅝" to 12") than can be handled by wagon or tripod drills, Bucyrus-Eries are able to prepare the same volume of material with far fewer holes.

Less maintenance is required because the strength of the machines' electric-welded frames and derricks resists the stresses of long and constant use. Derrick-head shock absorbers and rubber-insulated heel and spudding beam sheaves protect the units from harmful shock.

Sturdy power units (gasoline, diesel, or electric, depending upon your requirements and the size of the machine) reduce operating costs by applying power most efficiently and keeping fuel consumption low.

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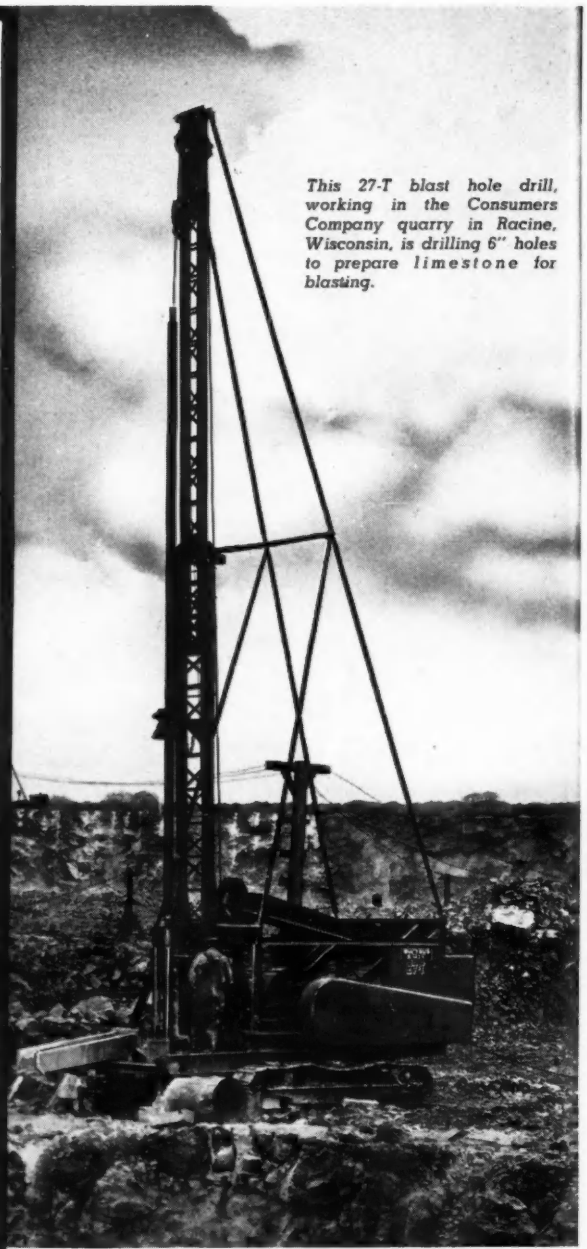

This 27-T blast hole drill, working in the Consumers Company quarry in Racine, Wisconsin, is drilling 6" holes to prepare limestone for blasting.

Bucyrus-Eries are money-savers all the way. It will be worth your while to investigate these blast hole drills when you plan your new equipment purchases.

22-T	**5⅝"**	**to 6⅝"**	**holes**
27-T	**6"**	**to 6⅝"**	**holes**
29-T	**6"**	**to 9"**	**holes**
42-T	**9"**	**to 12"**	**holes**

Gasoline or electric power is available for all machines . . . diesel for all except the 22-T.

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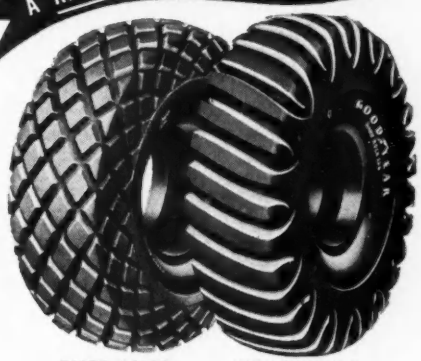
There's the reason why the Earth Mover Sure-Grip is *first choice* wherever super pulling power counts! Couple this with low-cost and long-life performance and you'll know why year after year, *more yards are moved on Goodyear off-the-road tires than on any other kind.*



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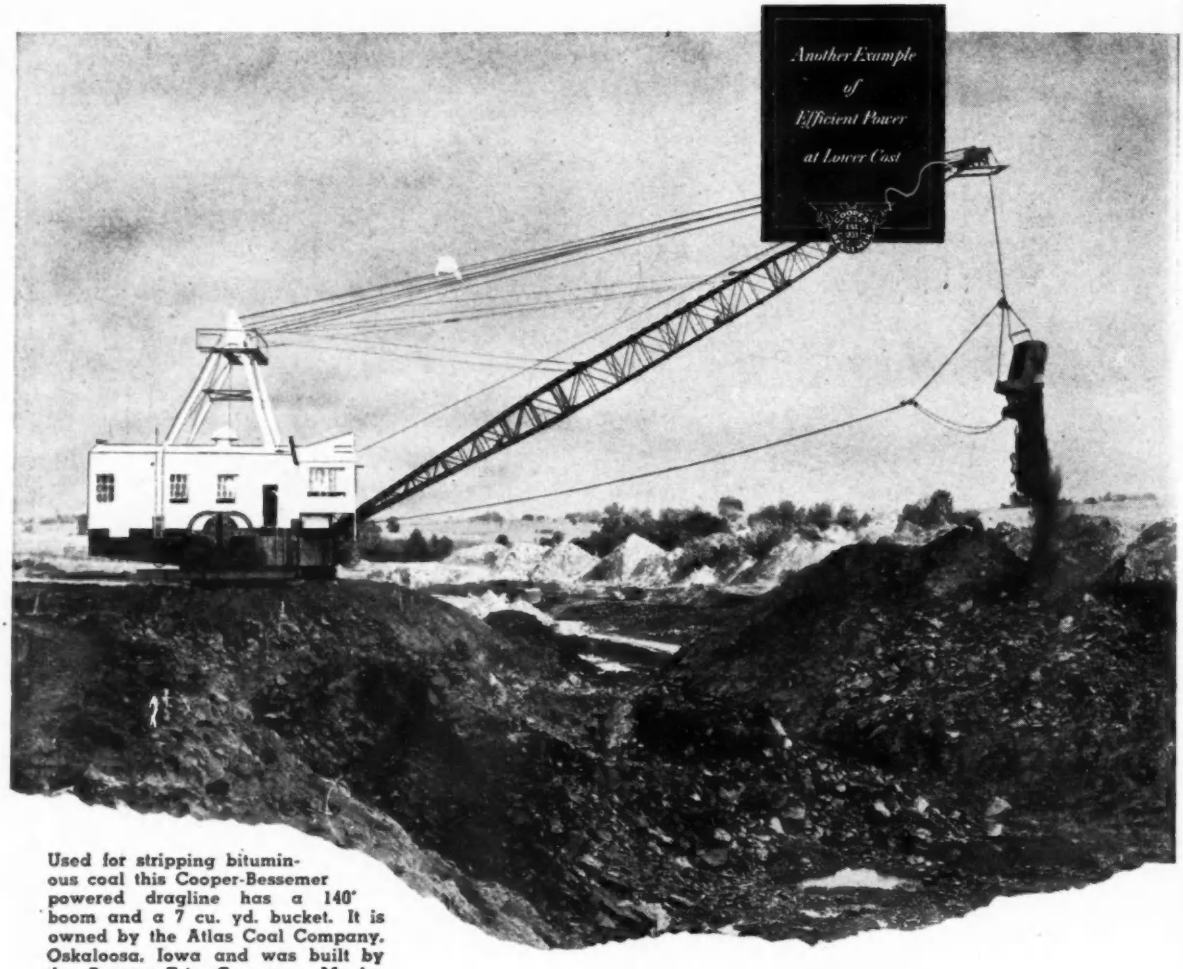

Used for stripping bituminous coal this Cooper-Bessemer powered dragline has a 140' boom and a 7 cu. yd. bucket. It is owned by the Atlas Coal Company, Oskaloosa, Iowa and was built by the Bucyrus-Erie Company, Monighan Division.

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If it's come-what-may reliability and long life you want in your diesel engines, a page from the book on dragline service will give you a good steer. You'd be hard put to find a service that demands more of diesels in the way of flexibility, response and downright toughness.

Because Cooper-Bessemer diesels have these qualities in extra measure, they're widely used today in dragline service. The hard-working, Cooper-Bessemer-powered unit above is typical.

But when you get right down to it, aren't the same qualities just as sure to pay off in any other kind of power service . . . marine, stationary, locomotive or what have you?

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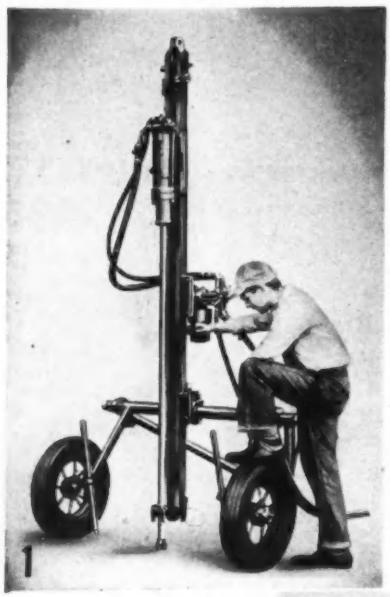

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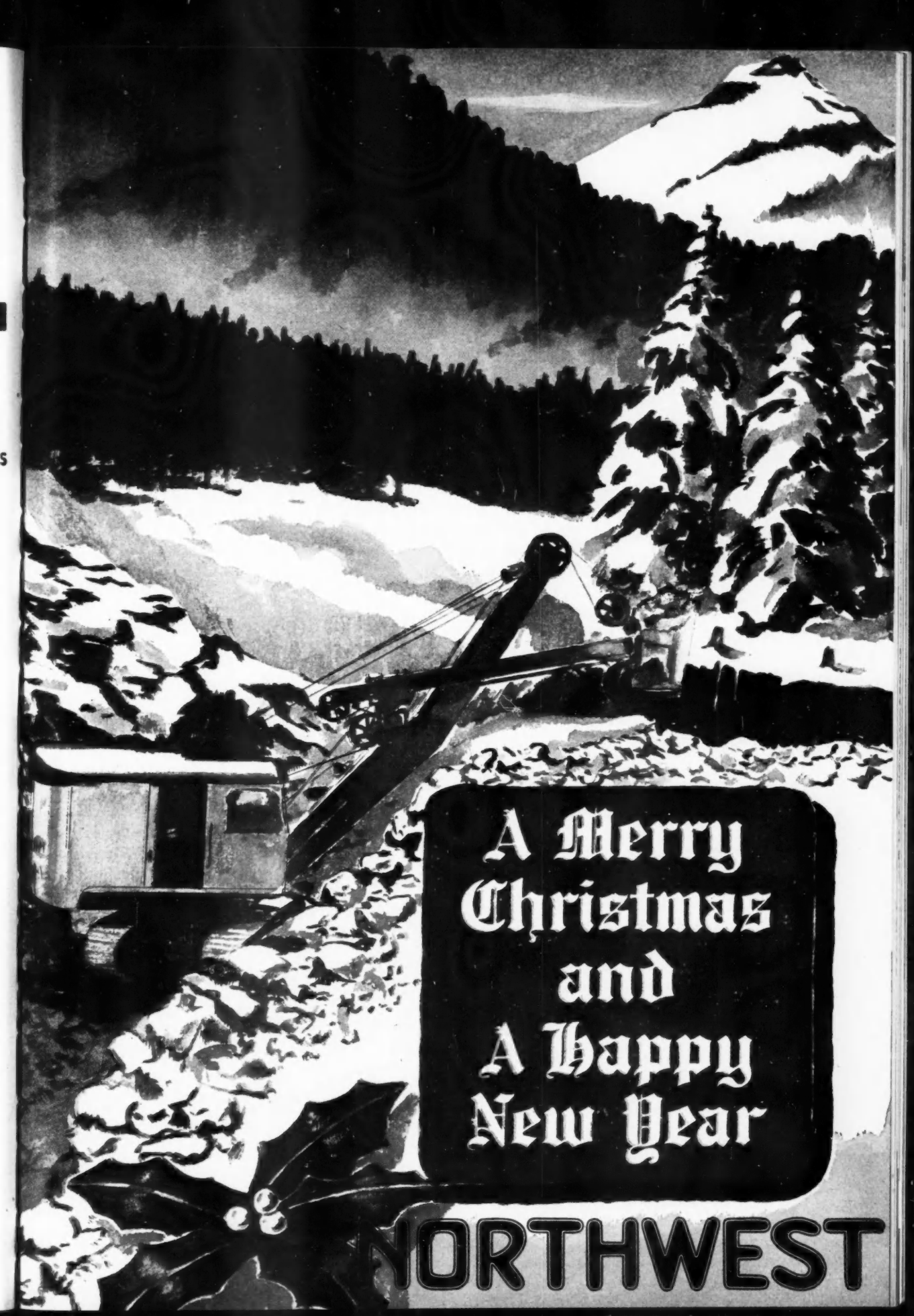
A Merry
Christmas
and
A Happy
New Year
NORTHWEST

2 "C" TOURNAPULLS for KENT

These high-speed, electric-control rigs helped finish road job at Laurelville, Ohio ... drove to Renrock, handled 10,000 yds. shale on Route 76 bridge approach ... then handled entire 70,463-yard relocation on McConnelsville-Caldwell Rte. 78.

KENT BROTHERS COMPANY, Columbus, Ohio, got their '48 dirtmoving season off to a fast start with two LeTourneau 150 h.p. electric-control C Tournapulls. First, the high-speed, rubber-tired 13-yd. rigs helped clean up a road job at Laurelville, Ohio . . . then drove 84 miles to their next assignment at Renrock.

"Sweet machines to move"

"We made the 84 miles in 5 hours, including a stop for lunch", commented E. S. Evans, grade foreman and master mechanic . . . "They're sweet machines to move!" Here's what he had to say

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about their performance on the 10,000-yard Renrock bridge approach . . . "These new C's look to me like the best pull-scraper combination I've ever seen."

Next, on relocation of Route 78 (illustrated), between McConnelsville and Caldwell, Ohio, Kent's hustling Tournapulls handled entire grading operation . . . moved 70,463 yards of sandy loam, clay and soapstone shale over average 2,000' hauls.

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At the end of their busy season, Kent Brothers' foreman reported that wet weather never shut down their rubber-tired Tournapulls . . . they kept working as long as it was possible to compact the fill. "On our jobs, the C's are incomparable", said Paul F. Kent, owner.

This ability to deliver steady production . . . cut weather delays . . . travel from job to job fast, can mean a busier, more profitable dirtmoving season for you, too. And . . . these "C's" earn extra profits during off-season, stockpiling coal for utilities, steel mills, etc. For complete facts on C Tournapull performance, prices and delivery, see your local LeTourneau Distributor . . . call him NOW.

McConnelsville-Caldwell road relocation was third major job on busy schedule for Kent Brothers' Tournapulls. They handled entire 70,463 yards . . . kept production on schedule.

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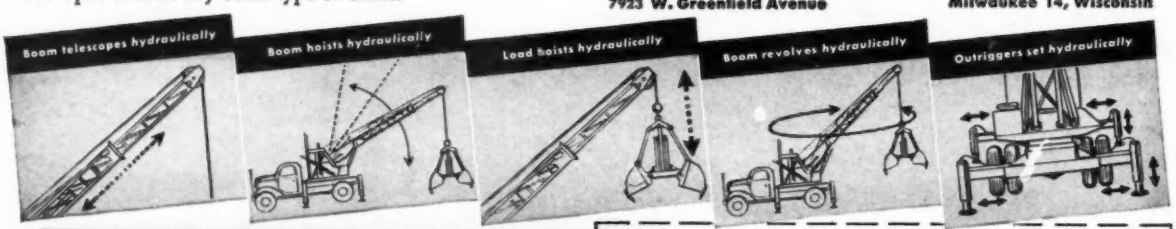

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The B-G Model 522 is a versatile pneumatic-tired Loader for those jobs that don't require the extra capacity of the 545-A. Provided with High Boom and Swivel Spout or Low Boom and Swivel Conveyor.

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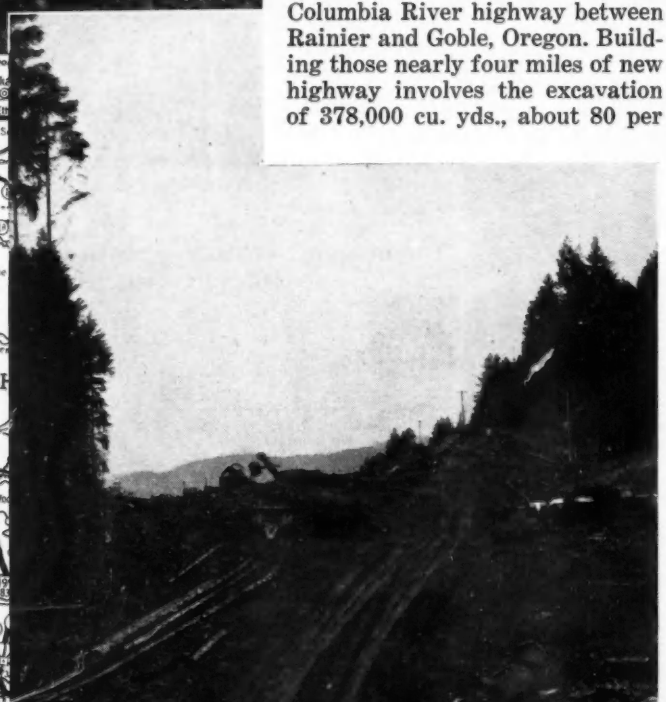
Cutting Through Coriba

Deep cuts through hard Coriba basalt, heavy spring floods and nearby railroad tracks combine to give Leonard and Slate, Portland, Oregon, contractors roadbuilding headaches on the Rainier-Goble highway relocation project.

By TOM RILEY

WHEN men build highways along the Columbia River in Oregon, they move mountains of rock. Bill Miller, job superintendent for Leonard and Slate, general contractors of Portland, Oregon, is well acquainted with such jobs. Right now, he is supervising the relocation of 3.66 miles of the lower Columbia River highway between Rainier and Goble, Oregon. Building those nearly four miles of new highway involves the excavation of 378,000 cu. yds., about 80 per



- **Above: Skinner Henry Lucker builds an access road with his Caterpillar D-8 on the edge of a bluff, 200 feet above the Columbia.**
- **Right: Second-growth Douglas fir, common along Columbia, was cleared from this area. In background 1½-yd. Bucyrus-Erie 38-B puts down cut.**
- **Circle on map shows where Leonard and Slate are relocating U. S. Highway 30 between Rainier and Goble.**

• Left: Cutting through this farm was the easiest part of the job. Here a ½-yd. Lorain TL29 crane excavates ditches for culverts.
• Right: Grubbing crew in the background burns stumps after this pioneer road was leveled on the eastern half of the project.

cent Coriba basalt. The biggest cut calls for the removal of the tip of a mountain.

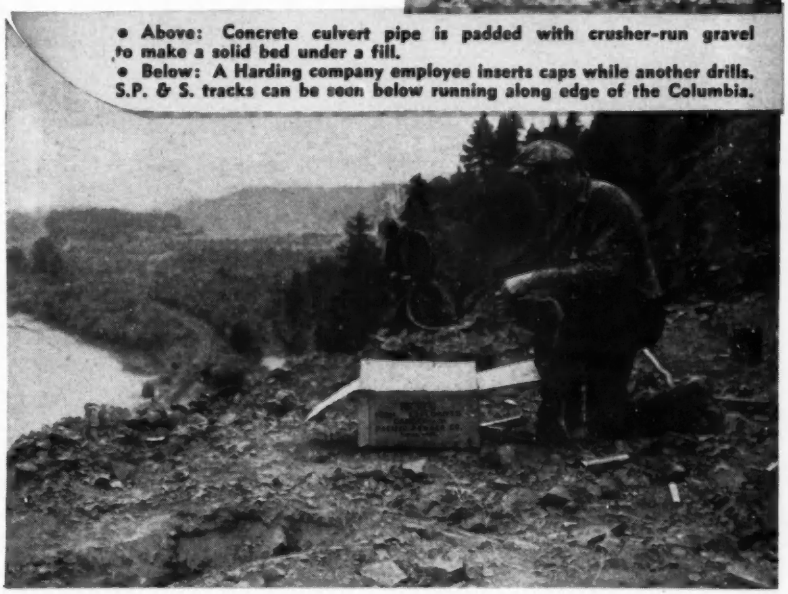
At this point in Oregon, U. S. Highway 30 is being straightened because the original highway cannot handle the heavy volume of today's traffic. Although Leonard and Slate were working on six similar road jobs when they began the Rainier-Goble project, they expect to have the relocation completed, including paving, by early Fall, 1949.

The Oregon State Highway department let the contract for this job for $820,203.80. Partially sponsored by Federal Aid, the contract includes all aspects of relocation, grading, and bituminous macadam surfacing. Leonard and Slate have subcontracted for the grading and paving as well as the blasting. Therefore, what they are tackling is the kernel of the project—the cuts and fills. Sharp twists and curves, steep grades and narrow roadway will be eliminated by the new location which slices straight across a small mountain, paralleling the Columbia River instead of contouring the rough terrain.

Solid Rock All the Way

Underneath the few feet of overburden here and there lies solid Coriba basalt. Nearly every contractor on the Pacific Coast knows this hard, gray-to-black rock, the base rock of the Pacific Northwest. A half-million years ago it burst forth in flow after flow, building the Cascade mountains and forming huge molten seas that oozed slowly eastward to the Rockies and westward to the Pacific. When it cooled, it left the present topography of Oregon, Washington and most of Idaho. Bill Miller and his men are excavating and moving a sizable portion of this solid rock that Nature left 500,000 years ago.

Clearing the right of way began May 10, 1948. Bill Miller used a Caterpillar D-8 dozer for heavy work and a 20-man crew for



• Above: Concrete culvert pipe is padded with crusher-run gravel to make a solid bed under a fill.
• Below: A Harding company employee inserts caps while another drills. S.P. & S. tracks can be seen below running along edge of the Columbia.

• Above left: Three Harding men work in the hard Coriba basalt preparing for shooting. One puts down a cavity for a charge, another loads a hole, while a third strings wire to detonator. Rock contour determined depth of holes, generally 14, 16 and 20 feet deep. All blasting was done with Pacific powder, six sticks of dynamite necessary to spring 20-ft. holes.

• Above, right: Job Superintendent Bill Miller studies profile drawing as he leans against a Dodge pick-up, his "headquarters" on project.

• Center, right: Fred H. Slate (left) and L. A. Runkle are present partners of Leonard and Slate, Portland, Oregon, contractors.

• Center: Powderman had to bring down river edge of big cut carefully, leaving a thin ridge between blasting and cutting to prevent rock from falling to tracks. Since picture was taken, abutment has been removed using a crew below to clear tracks of stray rocks.

• Below, left: A Harding man puts down blast hole using standard-grade Timken bits on hand-held drill.

• Below, right: Harding blasters brought down three levels in this area without rustling a shingle of farmhouse in background.

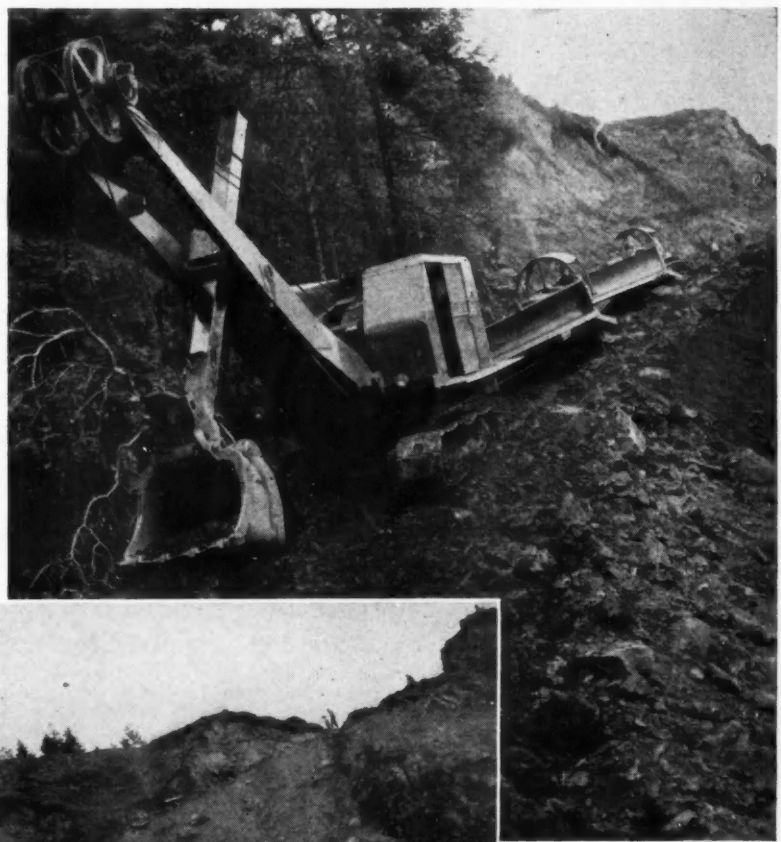
slashing, grubbing and burning. The work was the usual kind encountered by contractors working in an average West Coast timbered region. The dozer pushed through some level ground, some almost vertical, through common secondgrowth Douglas fir timber as well as through scrub oak and heavy brush. The contract specified it all, including the burning of stumpage at a lump sum of $25,000 for the 3.66 miles of 90-ft. wide right-of-way. The 20 men working one shift and the one D-8 dozer took three months to complete this part of the contract.

A ¾-yd. Bucyrus-Erie 22-B shovel moved in behind the clearing operations to place culverts for the fills. It was followed by a TL20 ½-yd. Lorain crane which finished the culvert excavations and opened ditchlines. The culverts in this area of West Coast rain forest drain only short areas of hillside, but nevertheless required 180 feet of 48-in., 100 feet of 42-in., 50 ft. of 36-in., 350 feet of 24-in., 960 feet of 18-in., and 200 feet of 12-in. concrete pipe.

The biggest cut actually meant removing the tip of the low mountain which is being leveled off in the project. The cut is 118 feet deep, Coriba basalt all the way except for a few feet of overburden. Moving the mountain top was part of the job, but Bill Miller found he also had to move the remains of a river bed first. The Columbia River rose to disastrous flood heights early in spring while Leonard and Slate crews were still clearing and opening a pioneer road. When the river receded, it left an oozing mud bed where the first fill had to be placed.

The heavy rock fill from the big cut could not be dumped on the bed of soft mud. Bill couldn't set his men at work on the other end of the project because the rock from the big cut was also allocated for subbase there. Removing the muck from the bed of mud was the only solution.

Bill did just that. He first



• **Above: Two Caterpillar D-8's cabled to the 38-B, help brake it down the steep slope to the river edge where muck had to be removed before filling could begin. As a safety measure, shovel operator kept dipper on ground or just above ground most of the way down.**

• **Left: Another view of the 38-B moving down the steep, narrow access road shows the incline of the slope. The going was slow and tedious. At this point the two D-8 Cats are hidden behind a low bank. Men at the top watch progress.**

• Above: The level where two men are outlined against the sky has been lowered 30-odd feet. The contract calls for a cut of 118 feet at this point, the deepest on the job. To the right are line posts along the railroad.

• Left: The 38-B moves loosened rock and overburden near the top of the big cut. This rig is handling all heavy rock work on the project.

• Below, left: As 38-B digs in background, overburden is removed by 21-yd. Cat-drawn LeTourneau W scraper push-loaded by another D-8 Cat, barely visible behind it. Wagon drills are Ingersoll-Rand (left) and Worthington.

• Right: Tournatrailers line up for their daily greasing on the "grease-rack." Logs are for heater in open repair shed.

built a narrow road down the face of the bluff. Two Caterpillar D-8's were cabled to the ½-yd. Lorain to brake it on its way down the steep slope to the mud bed where it took out 4,140 yards of soft mud. After the fill was started, the access road was enlarged to move down a 1½-yd. Bucyrus-Erie 38-B in the same manner. The 38-B completed removal of the muck.

The flood left another problem in its wake. State engineers raised the grade of the new roadbed east of the big cut from two to four feet because of the unexpected flood heights. The result meant a change in contract, adding 50,000 yards to the general excavation estimate of 378,000 yards. A 5,000-yd. estimate was also added for all muck removal.

Harding Blasts

The Harding Blasting Company of Springfield, Oregon, is handling the blasting work. The big cut gave them an extra headache, too. The S. P. & S. railroad runs along the shoreline of the Columbia directly below the bluff from which the basalt had to be dumped. Shots had to be planned carefully to prevent dumping a few hundred tons of the hard rock on the tracks. Down through three levels of excavation the pow-

der men were able to loosen the rock and the 38-B was able to shovel it out, leaving a narrow ridge only a few feet wide as an abutment between the work and the river edge. As a final operation, the abutment was taken out while a crew waited below ready to remove any material that catapulted downward to the tracks. The Harding Company displayed expert skill in blasting Coriba basalt when they set off three major blasts and several minor ones without disturbing one shingle of a farmhouse located just 100 feet away.

Use Five Compressors

Harding Blasting is using a small crew of from four to 12 men, but they operate five compressors because of the almost continuous sections of rock work throughout the job—one Ingersoll-Rand IK-315, one Worthington 315 and three Worthington 215's. All five are diesel powered. With the compressors they are using one Cleveland and two Worthington wagon drills and a half-dozen handheld drills of various makes. Harding is drilling with standard Timken bits, 2½-in. on the handheld drills, 3-in. on the wagons. The Timken bits will allow about 24 feet of drilling between sharpenings, a good average in Coriba basalt. However, the drill capacity varies with the quality of the rock. One foot is the maximum in some spots. Westland Bit Service in Portland does the re-sharpening.

Holes are tapered, the 3-in. wagon drill bits reducing to 2⅞ inches and then to 2⅝ inches on a deep hole. Holes were spaced every eight feet to move the first level of basalt in the big cut. Spacing was nearer 12 feet on succeeding levels. Depth ran to 14, 16, and 20 feet, depending on the contour of rock.

All blasting is done with Pacific powder. Six sticks of powder are usually necessary to spring holes 20 feet deep, the main charge depending entirely on the condition of the rock.

The 38-B is handling the big cut and all heavy rock removal in the project. It loads to six 17-yd. (heaped) Tournatrailers W-210's with Super "C" Tournapulls. One 21-yd. (heaped) Le Tourneau W scraper behind a D-8 Cat is used for the removal of overburden and other earth work. Two Caterpillar D-8 tractors are on the job, pulling and pushing the scraper and doing handyman work. Leonard and Slate consider this equipment the best for moving heavy rock where the longest haul is less than a mile.

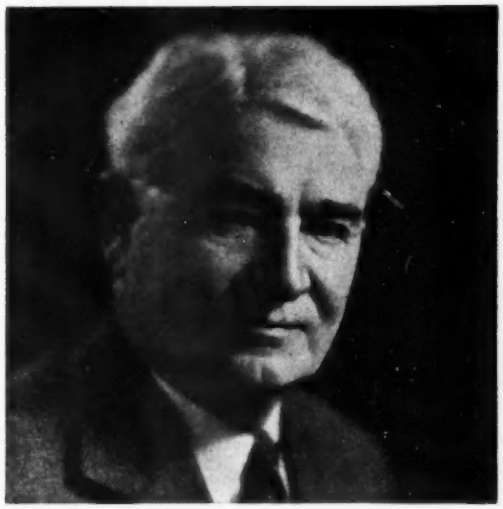
The contract estimates 1,362,000 yard stations of short overhaul at $.02 a yard station or $27,240. At places where longer hauls were to be made, the contract was let at $.50 a C-yard station (100 yards of material per station). This longer overhaul was estimated on the contract as 115,000 C-yard stations or $57,500. Both short and long overhaul are being handled by the six Tournatrailers W-210's as it is all the same type of rock work. The general excavation is unclassified, specified on the contract at $.95 a yard.

Paving Contract $171,000

O. C. Yocom of McMinnville, Oregon, holds the Leonard and Slate subcontract for the grading and paving which will probably begin in June, 1949. Grading and paving specifications of the contract, including the work required, base and subbase materials and their cost are: 37,000 yards of 4-in. to 0-in. crusher-run rock in subbase at $2.10 per yard, totalling $77,700; 14,000 yards of 2-in. to 0-in. crusher-run rock in base at $2.20 per yard, $30,800; 9,000 yards of ¾-in. to 0-in. crusher-run rock on base and shoulders, at $2.30 per yard, $20,700; furnishing and placing aggregates for

(Continued on page 44)

E. G. Lewis



E. G. Lewis, 77, well-known to the excavating industry as "Ed" Lewis, died at his home in Jackson Heights, Long Island, N. Y., October 3. Associated with the Bucyrus-Erie Company and a member of its sales department since 1912, he was "dean" of the company's sales organization for many years.

His work for Bucyrus-Erie Company included managership of the Chicago district office and nearly 20 years as manager of the Eastern District sales office in New York. Ed enjoyed many personal friendships among his business contacts in the excavation industry on the East Coast during his years of service. He was closely identified with the development of Bucyrus-Erie Company's excavator business in the anthracite coal stripping fields of Pennsylvania, the cement quarrying industry of Pennsylvania and the stone quarrying industry of the eastern states.

Always an active member of the National Crushed Stone Association as well as the Crushed Stone Associations of New York and Pennsylvania, he took a leading part in the early organization of the manufacturers' divisions of these associations.

Mr. Lewis is survived by his widow, Mrs. Carolyn Lewis.

Safety in Secondy

Presenting a program of attack on one of the principal sources of accidental injuries in quarries.

by G. G. Grieve

Staff Representative, Cement and Quarry Section,
National Safety Council

ONE FOURTH of all quarry accidents reported to the Portland Cement Association in one year occurred to operators of hand-held drills. Prevention of injuries to these men, therefore, offers a substantial opportunity for improving the general accident experience of the entire industry.

Physical conditions make the operator's work especially hazardous. He often must walk or climb and move his equipment up a steep slope over broken or icy rock to reach his working place. At work, he may be exposed to serious hazards from falling rock and from unexploded charges of dynamite.

In any safety program set up for this class of quarry worker, special attention must therefore, be given to eliminating physical hazards, furnishing safe equipment and training operators in safe practices.

Quarry and Blasting Improvements

Improvements in quarry and primary blasting methods offer a valuable solution since they can reduce the necessity for secondary blasting and hence remove many of the causes for accidents to drill operators. Quarries having high faces can reduce danger from falling rocks by proper benching. The multiple bench method has special advantages when the quarry face is more than 125 feet high.

Since fragmentation depends to a large extent on location of blast holes, amount of explosives, and other factors in primary blasting, these factors should be studied thoroughly for improvements that will reduce the costs and hazards of secondary blasting. Delay blasting is a recent major development which has greatly increased fragmentation and reduced vibration.

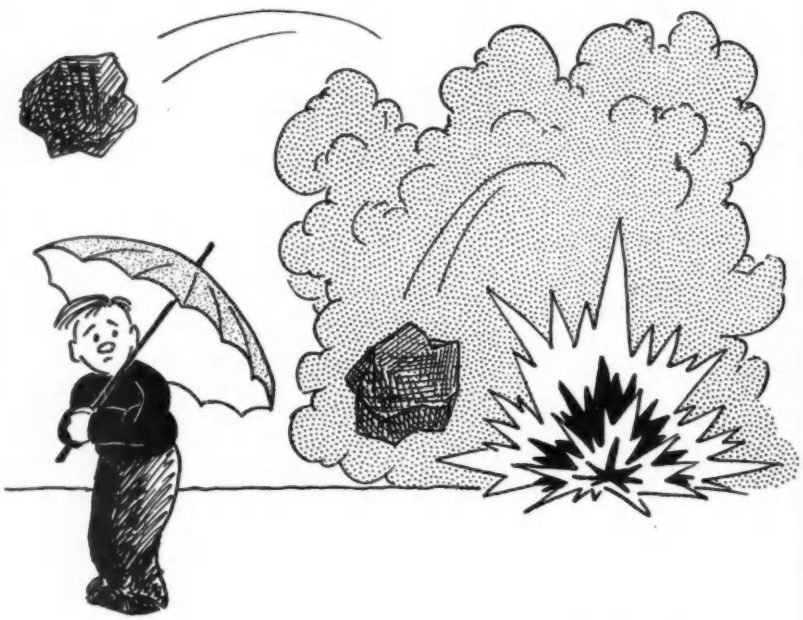
The drop ball for secondary breaking is used with considerable success by some quarries. This method is considered much safer than blasting because men are not exposed to the hazard of falling and rolling rock and to other dangers.

Excessively heavy hand-held drills cause fatigue, create strains in handling, and if the hammers are dropped, cause injuries to the feet and legs. The machines should be as light as practical and handles should be provided with heavy rubber grips to reduce vibration and fatigue.

Many injuries involving drilling equipment are due principally to failure to keep the machines in good condition. They should be inspected periodically and operators should be instructed to report defective parts promptly, not to operate unsafe machines.

Probably most accidents involving only the equipment are due to the drill steel, which occasionally breaks. When this occurs, the operator may lose his balance and fall from the rock he is drilling. Or he may be struck on the foot or leg by the falling machine. If the steel is too hard, a particle of

• Taking proper shelter when holes are shot is particularly important.



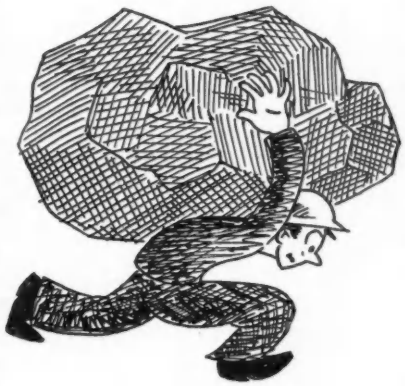
dy Drilling

metal may break off and strike him.

Manufacturers' instructions for sharpening steel should be followed strictly. The blacksmith and the operator should both check steel regularly for cracks or other weaknesses.

To avoid strains and falls when equipment is moved over icy or rough surfaces, air hose and pipe should be of lengths easy to handle.

Dust control equipment should be provided if the rock and drilling produce over 5,000,000 particles of free silica per cu. ft. in air in the breathing zone. Selection of the proper control system



• Large rocks should be moved to a safe place for drilling and blasting.

will depend on local and job factors, but will probably lie in two main categories: wet drilling or dust collection.

Personal protective equipment should be readily available to operators, who should consider safety shoes a "must." Shin guards are often advisable and hard hats should be worn in quarries having high faces. Accident experience shows that eye injuries may occur under such varying circumstances that goggles should always be worn.

Probably the principal hazard to operators is rock that may fall from the face or roll down the slope. The danger can be reduced in various ways, but the responsibility for taking these precautions nearly always lies with the foreman.

The quarry face should be thoroughly scaled by trained men and inspected by the foremen. Failure to take this precaution or to do a thorough job has inevitably resulted in many injuries. If dangerous over-hangs or similar conditions cannot be removed and must be left for later attention, the area beneath them should be roped off or barricaded.

Move Large Rocks

Shovel operators often can move large rocks away from the face and into a safe place for drilling and blasting. A foreman should see that this is done, especially if the driller otherwise might be required to work in a dangerous location. Sometimes a shovel dipper may be used to protect the operator temporarily by placing it on the slope between him and a possible slide or fall of rock.

Rain and thawing weather loosen rock which has been scaled and appears tight. Furthermore, even experienced scalers may overlook loose rock. Therefore, the operator should inspect the face and slope near his proposed working place before entering the area. He should take down any loose rock and use other indicated precautions. If there is doubt about the safety of the location, it may be wise to post watchers to warn the operator.

Walking, climbing and moving equipment over broken rock requires special care to avoid sprains and strains. Such injuries are especially likely to occur when a man carries drills and pulls air lines. If long instead of short hose is used, help should be available.

The operator should have sufficient slack in the air lines so that he is not jerked from his feet as he steps from one rock to another.

(Continued on page 48)

• The area beneath dangerous overhangs should be roped off or barricaded.

Excavating for Ce

• Northwest 80-D crane and 50-C Vulcan hammer put down one of the job's 3000 piles.

• Below: Vulcan pile drivers swung from Northwest (left center) and Link-Belt Speeder cranes are powered by a 45-h.p. stationary boiler (left). Worthington 315 air compressor at right powers a saw for cutting off pile ends to uniform height after driving, and air tampers. Tower at right is for a 45-ton Colby crane.

• Location map sho
relationship of t
Tracy Pumping Plant
the great Delta-Me
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from the Sa
ramento Valle

ral Valley's *Heartbeat*

S. U. H. B.'s $8,400,000 job near Tracy, California includes 4½-million cu. yds. of excavation and driving 3,000 13-in. x 50-ft. wooden piles for the Tracy pumping plant —second largest in the world.

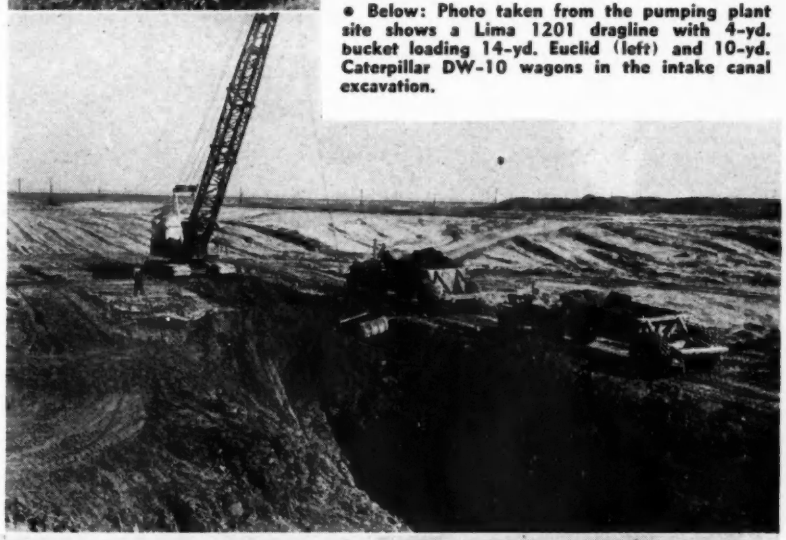
by O. G. BODEN

Construction Engineer, Tracy Pumping Plant

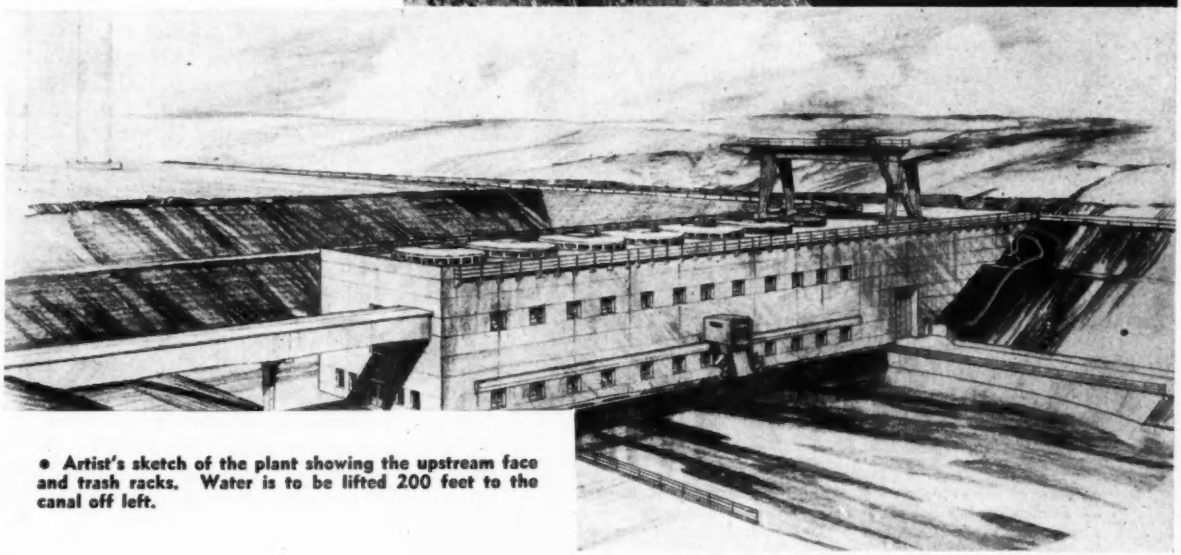
A HOLE greater in volume than Hoover Dam has been dug 50 miles west of San Francisco for the Tracy pumping plant—called the "heartbeat" of the Central Valley Project. This plant is the connecting link that makes the Central Valley Project possible, according to the Bureau of Reclamation Regional Director, R. L. Boke.

"This is the job," Mr. Boke said, "which integrates the water resources of the Sacramento Valley with those of the San Joaquin Valley. Flood waters conserved by Shasta Dam and other Sacramento Basin reservoirs will be lifted here into the northern San Joaquin Valley, making possible the use of San Joaquin River water in the

• In the intake canal excavation, a Euclid 5-BV loader drawn by a Caterpillar D-8 tractor loads a second 14-yd. Euclid 58-W wagon as the first pulls away to a disposal area.



• Below: Photo taken from the pumping plant site shows a Lima 1201 dragline with 4-yd. bucket loading 14-yd. Euclid (left) and 10-yd. Caterpillar DW-10 wagons in the intake canal excavation.



• Artist's sketch of the plant showing the upstream face and trash racks. Water is to be lifted 200 feet to the canal off left.

southern valley. This operation is the essence of the whole coordinated scheme of water resources development in the Central Valley."

President Truman called the Tracy pumping plant the key structure in the irrigation of the valley in his budget message to the Congress in January. He said: "The Central Valley project of California estimate is $41.5 million. This amount will provide a construction program that will enable irrigation water to be put on the land immediately upon the completion of the Tracy pumping plant, the key structure in the irrigation development."

Initial work on the job was awarded by the Bureau of Reclamation to the S.U.H.B. Company of Oakland, California, June 23, 1947, on its low bid of $5,888,695. (The initials represent the four companies that combined on the winning bid—Stolte, Inc., United Concrete Pipe Corp., Duncanson Harrelson Company, and Ralph A. Bell.)

Just to perform the huge excavation the S.U.H.B. firm estimated a cost of $1,332,415. It is significant that this figure is $350,000 below the estimate of the next low bidder, whereas the contractor's estimate for all phases of the work was only $250,000 below the unit bid of his nearest competitor. Obviously it was the excavation phase of the bid that did the trick.

Notice to proceed was issued by the Bureau to the contractor on August 5, 1947, which established the first of the 960 days allowed to complete. The completion date of the construction contract is March 22, 1950. S.U.H.B. was awarded an additional contract March 5, 1948 for $2,552,302 for furnishing and installing steel and precast discharge lines.

The site nine miles northwest of Tracy is a beehive of activity. In September, 1947, the first full month of operation, 130,000 cu. yds. of earth were moved; the amount doubled in October, tripled in November. Today a great T-shaped crater is molded to a hard blue clay foundation on which will emerge a pumping plant of concrete covering an acre of ground, second largest in capacity in the world and an inlet canal that will carry 4600 cubic feet of water per second from Old River.

• View of the completed pumping plant excavation (looking west) shows Byers 83 crane cleaning out plugs in a drainage ditch with a ¾-yd. clamshell bucket. Northwest 80-D crane and a Caterpillar D-8 tractor are being rigged for pile driving and rotary drilling, respectively, at rear.

Use Loader in Canal

In the tail of the T, one of a team of crawling Euclid elevating graders plied the length of the canal, digging and throwing the earth on to its revolving belt. Following close to the rear of the grader, like elephants holding each others' tails, was an ever-moving fleet of 14-yd. trucks into which the belt expelled the earth; then off they scrambled to the dump pile. Big Cat-drawn carry-all scrapers were also used on short hauls, and bulldozers and did their share.

Along the canal on either side about 200 yards back are the spoil-banks of waste, four miles in all, challenging the height of the neighboring Delta hills. Sticky and brown, they'll not blow away. They will be tidy and permanent when the job is done, will have cost the Government a cool million and a quarter dollars.

In the more limited area of the pumping plant site draglines and

(Continued on page 40)

Memo from our
RAW MATERIALS DEPT.

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION
OFFICE MEMORANDUM

DATE 8/11/48

TO. Metallurgical Dep't.

SUBJECT: Performance of Heat Treated JALLOY Steel at Benson Mines, Star Lake, N. Y.

1" x 6" heat-treated JALLOY #3 flats to reinforce truck-body bottoms and doors. Service—severe impact loading of hard rock magnetite ore from 5-yd. shovel. Year round operations in temperatures to minus 47°F. Severe abrasion in unloading. Installations have been in service 13 months —305,000 tons handled per truck. Units equipped with these flats maintain bottom flatness and clean readily. Insignificant wear at this date indicates at least 2 years life before replacement is necessary.

WHAT better "laboratory" could we find to prove the qualities of J&L Steel than in the equipment required in our own operations?

The handling and moving of heavy, abrasive ore-bearing rock, at our Benson Mines, is a rugged test for any equipment. Yet our stone trucks equipped with heat-treated J&L JALLOY Steel reinforcing strips have run *more than a year* without bottom replacements. *And recent reports indicate at least two years life!*

These JALLOY strips receive the full impact of huge rocks *dropped* into the truck bodies, and withstand the abrasion caused by dumping load after load. This continuous resistance to shock is particularly noteworthy because of the embrittling effect of the sub-zero temperatures encountered during winter months.

J&L JALLOY is a fine-grain, heat-treated steel made in a wide range of physical properties with tensile strengths of 155,000 to 180,000 lbs. per sq. inch. Its inherent ability to withstand shock and abrasion adds life to equipment that must be tough and strong—such as: Rock crushers, Scrapers, Bulldozers, Dump cars, Power-shovel buckets, Truck bodies, Sandblasting equipment—or wherever abrasion and impact are limiting factors.

Manufacturers of trucks and trailers designed for heavy service will find JALLOY an excellent material for body bottoms, reinforcing strips exposed to severe abrasion, tail gates and many other applications. You'll find that JALLOY is a steel that stands up when the going gets tough. For more complete information, let us send you the booklet: "*Jalloy*—J&L *Alloy Steel*." It includes data on properties, heat treatments and workability. The coupon at the right is for your convenience.

Jones & Laughlin Steel Corporation
429 Jones & Laughlin Building
Pittsburgh 19, Pennsylvania

Please send me your booklet: "Jalloy—J&L Alloy Steel."

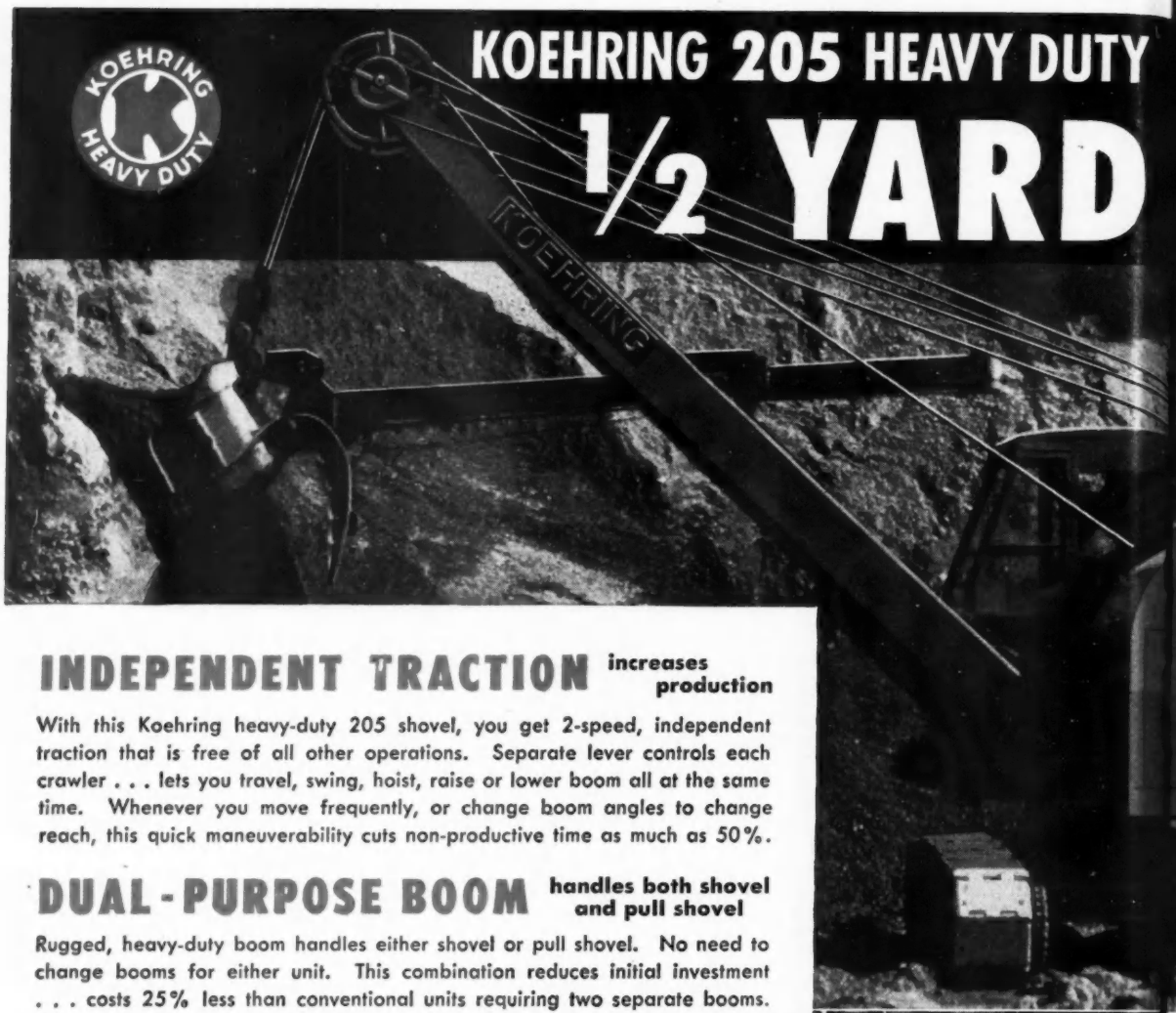
Name_____ Title_____

Address_____

_____

JONES & LAUGHLIN STEEL CORPORATION

KOEHRING 205 HEAVY DUTY 1/2 YARD



INDEPENDENT TRACTION increases production

With this Koehring heavy-duty 205 shovel, you get 2-speed, independent traction that is free of all other operations. Separate lever controls each crawler . . . lets you travel, swing, hoist, raise or lower boom all at the same time. Whenever you move frequently, or change boom angles to change reach, this quick maneuverability cuts non-productive time as much as 50%.

DUAL-PURPOSE BOOM handles both shovel and pull shovel

Rugged, heavy-duty boom handles either shovel or pull shovel. No need to change booms for either unit. This combination reduces initial investment . . . costs 25% less than conventional units requiring two separate booms. Saves time and increases all-purpose efficiency. Koehring 205 excavator can also be quickly converted to dragline, clamshell, lift crane or pile driver.

ACCESSIBLE MACHINERY cuts non-productive time

Here is another feature you'll like on the Koehring 205. Every part that requires periodic servicing or adjustment is readily accessible. You have less time out for adjustments. Simple, orderly and compact design of shovel boom, boom-hoist mechanism, traction gear case and main operating machinery provides greater operating ease . . . quick adjustments . . . cuts non-productive time to a minimum. You keep production at peak efficiency.

RESULT — these three big advantages can mean more production, lower costs on your shovel work. Remember, too, this 205 is available on crawlers or rubber tires to suit your job conditions. For complete information on the ½-yard 205 . . . or the bigger Koehring ¾-yard 304, and 1½-yard 605 . . . see your local Koehring distributor or write to him for literature.

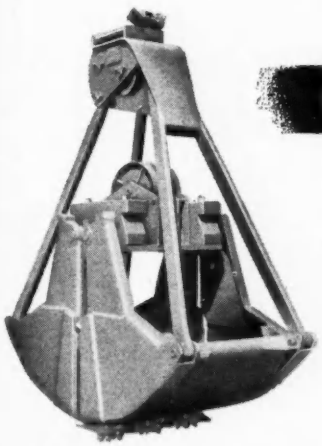
KOEHRING COMPANY
SUBSIDIARIES: PARSONS KWIK-MIX • JOHNSON

EASY ACTION and LONG LIFE

JOHNSON clamshell buckets are built in 3 basic types... every one ALL-WELDED... for big . . . clean payload performance in all kinds of digging.

WIDE REHANDLING

This Johnson Wide-Rehandler Bucket delivers bigger payloads because of its light weight all-welded construction. Bucket is welded smooth inside and out . . . digs and dumps loose material with less resistance. Sealed roller bearing sheaves have easy action and remarkable long life. You get extra strength, longer life because there are no bolts or rivets to work loose. Available in 9 sizes: ⅜ to 2½ yds.



GENERAL PURPOSE

For all-around use on your medium digging and rehandling jobs, this all-welded General Purpose Bucket has extra strength, lower center of gravity for improved digging and loading balance. Hard manganese cutting edges wear longer, get tougher with use. Sealed needle bearing sheaves keep dirt and moisture out; eliminates friction losses, keeps sheaves free-running. 9 sizes, from ⅜ to 2½ yards.

HEAVY-DUTY DIGGING

For your heaviest excavating and dredging work, here's your Heavy-Duty Digging Bucket. Weight, saved in other parts by welding, is put back into thick sides, lips and bottom, where strength is needed to take the pounding of fast drops. Strain points are reinforced, low center of gravity lets teeth bite in straight and deep. 6 sizes: from ½ to 2½ yards.

With all 3 types of Johnson clamshell buckets you get sealed roller bearings for EASY ACTION and LONG LIFE. Ask your Johnson distributor for complete facts and figures.

MILWAUKEE 10, WISCONSIN

DUMPTOR — Trademark. Reg. U. S. Pat. Off CX810c

THE C. S. JOHNSON COMPANY

Koehring Subsidiary: CHAMPAIGN, ILLINOIS

Equipment you ought to KNOW ABOUT

Railroad Car Unloader

Manufacturer: Barber-Greene Company, Aurora, Illinois.

Claims: A new railroad car unloader, Model 358, featuring a compact and simple conveyor drive mechanism has been announced. Designed for unloading both abrasive and non-abrasive materials from hopper to bottom cars, it is belt driven through a standard cone-drive speed reducer, making it possible to start the conveyor under a full load of material. It is unnecessary to dig the unloader out from under the car, as is the usual practice, to start it in case of power failure or other type of breakdown.

Used with a 5-hp, 1150-rpm gasoline engine, the cone-drive furnishes a ten to one reduction for the conveyor. The cone unit's three-in. center distance compares with five-in. centers usually required if a conventional type speed reducer of the same capacity is used.

Portable Crusher

Manufacturer: Athey Products Corporation, Chicago, Illinois.

Claims: A new portable crushing unit, designed primarily to tow behind an Athey force-feed loader, makes it possible to rework surfacing materials, black top, concrete and gravel on the site, eliminating transporting to and from a central crushing plant. The one man operated unit picks up sacrified or broken material from the road, crushes it to any required size and deposits it back on the roadway in one continuous operation. The crusher hopper is fitted with breaker bars which pulverize material and deflect it onto a grid iron preventing the fines from entering the mill.

The unit consists of an impact mill powered by a "Caterpillar" diesel engine, mounted on a two-wheel rubber-tired trailer. A multiple V-belt drive connects the engine with the mill.

Plans call for completion of field tests this season and production soon after the first of the year.

Truck Tracks

Manufacturer: P. & G. Supply Co., 615 S.E. Market Street, Portland 14, Oregon.

Claims: To beat winter snow and mud, truck operators may now fit their hauling equipment with crawler type tracks, known as Truck Tracks.

They permit effective hauling operations under mud, snow and desert conditions which stall ordinary wheeled vehicles.

The tracks may be fitted to single or tandem axle trucks equipped with most standard dual tires in about 10 minutes, even less time required for removal according to the manufacturer.

Pads are made of drop-forged steel alloy. Fitting is done by adding or removing pads and linkage, every pad having a master adjustment to assure proper track tension. Connecting the pads is a cadmium-plated chain of heat-treated, high tensile steel.

Rear Dump Rock Wagon

Manufacturer: R. G. LeTourneau, Inc., Peoria, Illinois.

Claims: A new rear dump wagon, the E-16 Tournarocker (struck capacity, 16.5 yds. or 16 tons) has been announced. Designed to be loaded by shovel or dragline it is powered by the new 150 Model C Tournapull. Positive power electric steering plus a 90° turning radius makes the Tournarocker able to turn around in a 12½-ft. radius.

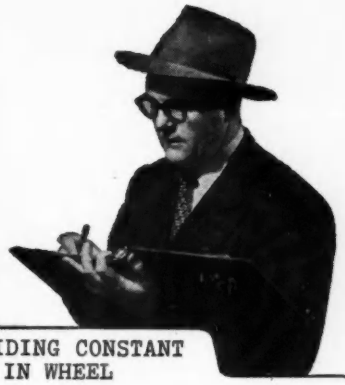
The Tournarocker end dumps material behind its rear tires by locking brakes on rear wheels at edge of dump and raising the bowl by means of a Tournatorque electric motor and cable attached to bottom rear of bowl. This pulls the prime mover back towards rear wheels, tips the bowl and dumps the material. Electric motor cable control also allows the Tournarocker to dump while traveling.

Replaceable Bit Rooter

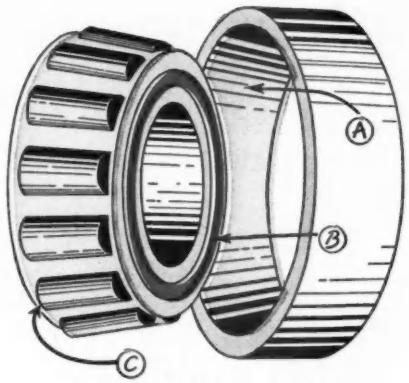
Manufacturer: Gar Wood Industries, Inc., Findlay, Ohio.

Claims: To cut down the time consumed in replacing the rooter on digging buckets, the Quick-Change Rooter Bit was recently developed. It consists of two members, a holder which is bolted to the bucket and a removable bit or cutting edge which can be readily replaced when worn. By hammering it into the holder, a wedge-shaped socket or cavity in the holder receives a correspond-

(Continued on page 38)



CASE 1025--PROVIDING CONSTANT LUBRICATION IN WHEEL BEARINGS.



AUTOMOTIVE ROLLER WHEEL BEARING

Wheel bearings in trucks hauling heavy loads in desert heat, winter cold and rain, were in perfect condition long after usual servicing periods when the bearings were lubricated with RPM Wheel Bearing Grease. Recommended for all sizes and types of wheel bearings. Apply to bearing assemblies by hand or with mechanical lubricators.

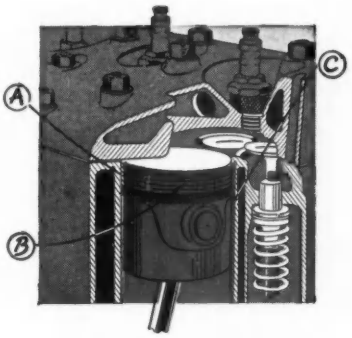
A. Maintains tough, resilient film on bearing surfaces - protects during constant pounding of road shocks and under overload pressures.

B. Feeds slowly to bearing parts ... resists extreme temperatures - will not melt and run from hubs onto brakes.

C. Stays in smallest bearing clearances.

RPM Wheel Bearing Grease provides good lubrication in the presence of water.

CASE 1017--REDUCING OVER-HAULS IN GASOLINE ENGINES.



SECTION OF GASOLINE ENGINE

When gasoline engines were lubricated with compounded RPM Motor Oil, pistons, cylinders, valve stems and other oil-contacted parts remained clear of carbon, gum and lacquer. Wear was minimized and rusting was not a problem. Recommended for gasoline engines. Five grades: SAE 10/10W to SAE 50.

A. Contains detergent which loosens and removes carbonaceous matter, keeps it dispersed in the oil so it is removed with drainings. Assures free-working rings, valves and other parts.

B. Sticks to hot spots - reduces usual wear on upper cylinders and pistons.

C. Adherence to cylinders when engine is idle minimizes starting wear and prevents rusting - moisture will not cut through oil film.

Other compounds in RPM Motor Oil resist oxidation, prevent corrosion of bearings, and stop foaming.

For additional information and the name of your nearest Distributor, write

STANDARD OIL COMPANY OF CALIFORNIA

225 Bush Street, San Francisco 20, California

The California Oil Company
Barber, New Jersey

The California Company
17th and Stout Streets, Denver 1, Colo.

Standard Oil Company of Texas
El Paso, Texas

RPM CALOL

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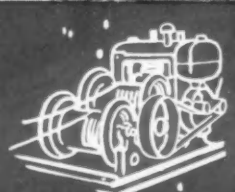
EARTHMOVING POWER— *by* INTERNATIONAL

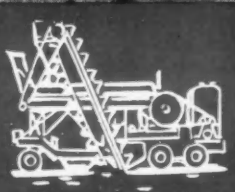
The International UD-14A Diesel delivers 76 working horsepower. You'll find it powering generators, rock crushers, hoists and dozens of other industrial applications.

Averaging 70 yards of earth an hour, this dragline with its 45-foot boom and one-yard bucket gets its power from an International UD-14A Diesel. It's economical, dependable power, too. No repairs have been needed for the engine in more than 6,000 hours of operation. Here's one more unit that proves International Power is the ideal earthmoving power.

CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL





The International UD-9 Diesel engine produces 53 working horsepower. You'll find UD-9 Diesels in cranes, compressors and many other types of construction and industrial equipment. International engines are the mark of quality in powered equipment.

A payloader, with one-yard bucket, driven by an International UD-9 Power Unit, does dozens of jobs in its daily diet of work. This versatile tool is built to handle earth, loose materials, rock and similar commodities either in industrial set-ups or on contractors' spreads.

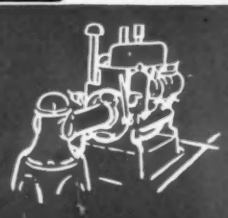
Listen to "Harvest of Stars" featuring James Melton every Wednesday evening—CBS.

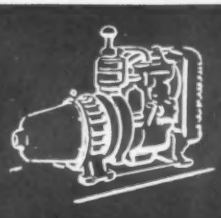
Whatever your earthmoving power requirement may be, insist on equipment powered by International engines. They are your guarantee of durable, cost-cutting horsepower. See your International Industrial Power Distributor about International-powered earthmoving equipment. You'll find International engines pay big dividends in freedom from down time, and in work done. It's wise to remember—wherever you need an engine—you need an International.

INTERNATIONAL HARVESTER COMPANY, CHICAGO

INTERNATIONAL HARVESTER

Industrial Power





Shots from the FIRING LINE

Eight Iron Ranges Ship 79,685,143 Gross Tons

Eight iron ranges in the Lake Superior area shipped 79,685,143 gross tons of iron ore during 1947. Lake shipments amounted to 77,878,998 tons; all-rail shipments, 1,806,145 tons. The 1946 total was only 61,028,380 gross tons by comparison; the 1945 total, 76,980,050.

The eight ranges support 152 companies each averaging an output of 524,244 tons, compared with the average of 462,336 tons from 132 mines in 1946. Minnesota led the way in gross output, sending 63,517,190 tons from 111 mines while the 38 mines of Michigan-Wisconsin ranges produced 14,463,628 tons. Three mines on the two Canadian ranges sent forward 1,704,325 tons.

The accompanying list tabulates the number of companies in order of total tonnage shipped from their mines. Because certain mines shipped ore for more than one company; some companies moved ore for others; steel companies have a large interest in properties operated by others; some mines shipped only a small amount of trespass ore and others made shipments from old stockpiles of ore mined years ago, the compilation may not be absolutely exact, but is as accurate as possible under the circumstances.

The lower table gives the shipment by ranges and the totals by both lake and all-rail movement.

1947 Iron Ore Shipments by Lake Superior Ranges

1947 Shipments by Companies

Operating Company Rank and Range	No. of Mines	1947 Shipments Gross Tons	% of Total
1. Oliver Iron Mining Co.	32	35,822,622	45.0
2. Pickands Mather & Co.	22	12,303,735	15.4
3. Cleveland-Cliffs Iron Co.	17	8,394,967	10.5
4. The M. A. Hanna Co.	21	6,716,530	8.4
5. Interstate Iron Co.	5	3,273,933	4.1
6. Butler Brothers	8	2,577,834	3.2
7. Republic Steel Corp.	5	2,295,692	2.9
8. Oglebay, Norton & Co.	2	1,796,237	2.3
9. Snyder Mining Co.	3	1,219,510	1.5
10. Steep Rock Iron Mines, Ltd.	1	1,206,601	1.5
11. Inland Steel Co.	4	949,920	1.2
12. Charleson Iron Mining Co.	1	737,204	0.9
13. North Range Mining Co.	3	548,603	0.7
14. Algoma Steel Corp.	2	497,724	0.6
15. Wheeling Steel Corp.	2	265,187	0.3
16. E. W. Coons Co., Inc.	1	145,420	0.2
17. Zontelli Brothers	1	118,064	0.2
18. Pacific Isle Mining Co.	7	115,983	0.2
19. Zontelli Bros. & Leach	1	112,368	0.1
20. W. S. Moore Co.	5	105,067	0.1
21. Rhude & Fryberger	2	98,338	0.1
22. York Iron Mining Co.	1	74,162	0.1
23. Rhude, Fryberger & Leach	1	65,633	0.1
24. Inter-Range Mining Co.	1	62,886	0.1
25. J. G. Sellwood	1	60,648	0.1
26. Globe Iron Co.	1	44,829	0.1
27. Dates Mining Co.	1	42,642	0.1
28. Jackson Iron & Steel Co.	1	32,804	0.1
Grand Total	152	79,685,143	100.0

1947 Shipments by Ranges

Range	No. of Companies	No. of Mines	Lake Shipments	All-Rail Shipments	Total Shipments
Mesabi	18	94	58,063,362	1,016,009	59,079,371
Vermilion	2	4	1,352,145	77,450	1,429,595
Cuyuna	6	12	2,704,025	156,412	2,860,437
Fillmore Cty., Minn.	1	1	.....	147,787	147,787
Total Minn.	27	111	62,119,532	1,397,658	63,517,190
Gogebic	4	9	5,252,027	928	5,252,955
Marquette	5	15	5,288,067	255,059	5,543,126
Menominee	8	14	3,598,453	69,094	3,667,547
Total— Mich. and Wis.	17	38	14,138,547	325,081	14,463,628
Total— U. S. Ranges	44	149	76,258,079	1,722,739	77,980,818
Michipicoten	1	2	419,112	78,612	497,724
Steep Rock Dist.	1	1	1,201,807	4,794	1,206,601
Total—Canada	2	3	1,620,919	83,406	1,704,325
Grand Total	46	152	77,878,998	1,806,145	79,685,143

From Skillings Mining Review

Ruling Requires Cut In Reclamation Employment

The Department of the Interior has announced that the discharge of an estimated 800 more Bureau of Reclamation employees is required under a new Comptroller General's ruling that the intent of the 80th Congress was to bite even more deeply into Reclamation than previously anticipated.

The new cuts bring the total employment reduction required by the limitation imposed by the 80th Congress on Reclamation payrolls to more than 3,800. Prior to the Comptroller General's ruling, the jobs ordered eliminated totaled 2,882, and some 200 more were still necessary.

The additional reductions ordered into immediate effect will reduce Reclamation's forces under the previous year. They will necessitate the separation of administrative, supervisory, engineering, project operating and construction employees affecting jobs in the 17 western states and Washington, D. C.

Previous employment retrenchment had brought the Bureau of Reclamation to within about one percent of complying with the $48,000,000 limitation as interpreted with advice of counsel prior to the Comptroller General's ruling, and additional steps were being taken to assure complete compliance. The additional cuts required to make up that difference, plus those necessary to comply with the Comptroller General's decision, make it necessary to discharge personnel whose annual salaries would total some $3,000,000, or about 6 percent of the current pay roll burden. At the Bureau's average rate of pay of some $3,000, this would require about 1,000 additional persons to be discharged.

Commissioner of Reclamation Michael W. Straus explained that prior to the Comptroller General's ruling, the

(Continued on page 34)

Beat Gumbo, Slopes — and Schedules With NEW BUCYRUS ERIE *S-Type Scrapers*

You can work in sticky gumbo that loads hard and dumps *harder*, cling to steep slopes, stay on top of soft ground . . . you can gain time when time means money—with Bucyrus-Erie S-Type Scrapers.

Completely new from drawbar to push bumper, these modern scrapers are job-proved to give you faster loading, forced rolling ejection, low-centered stability, positive flotation. Get the full story on their plus performance from your International Industrial Tractor Distributor. 123T48C

BUCYRUS-ERIE COMPANY
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Some features that make Bucyrus-Erie S-Type Scrapers stand out and stand up:

DROP CENTER FRONT AXLE — Provides level pull.

LARGE LOW PRESSURE TIRES — Insure maximum flotation.

HINGED APRON — Opens B-I-G for sticky material. Easily converted to conventional opening.

GOOSE NECK FRONT — Short turning radius — big throat clearance.

DOUBLE CURVED CUTTING EDGE — Boils dirt into apron uniformly with reduced horsepower requirements.

POSITIVE ROLLING EJECTION — Full clean dump — FAST.

LOW MAIN FRAME — Provides low center of gravity, greater stability.

STRAIGHT LINE CABLE REEVING — No side bends — only one reverse bend.

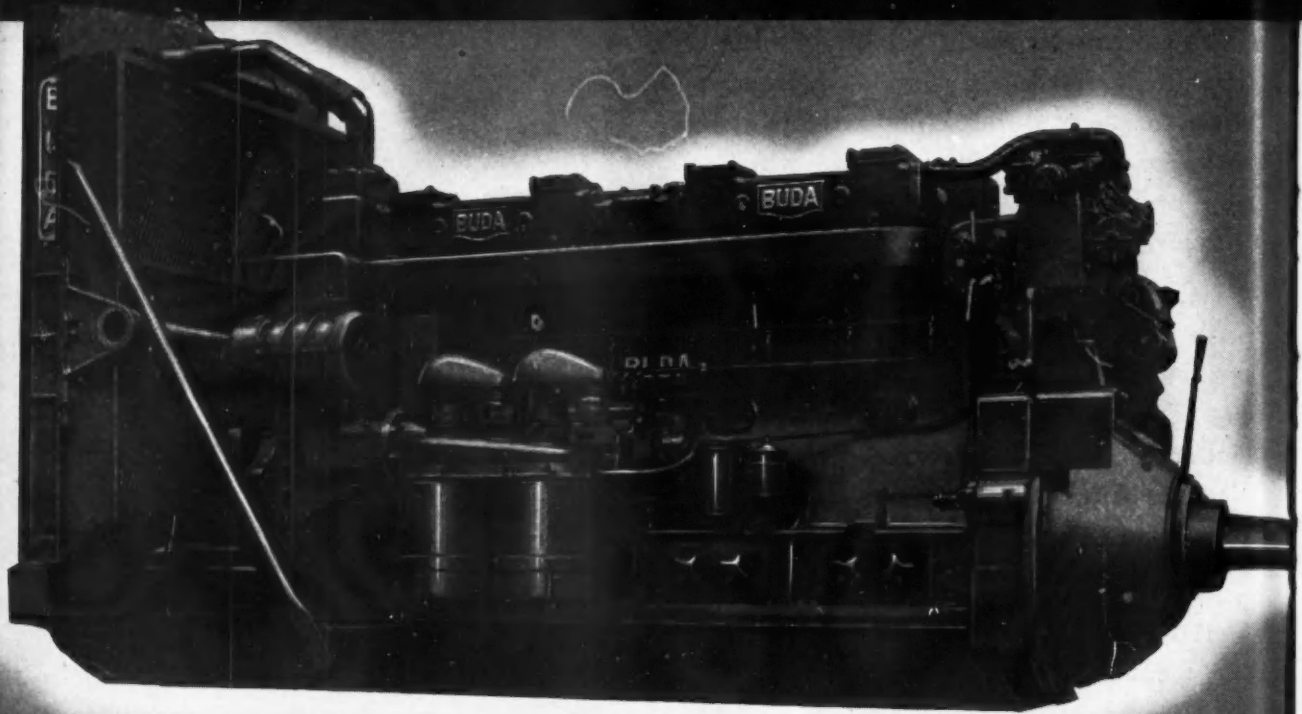
STRUCK CAPACITIES

S-46	4 cu. yd.
S-68	6 cu. yd.
S-91	8 cu. yd.
S-113	10 cu. yd.

ALSO B-TYPE SCRAPERS in these Struck Capacities

B-170	15 cu. yd.
B-250	22 cu. yd.

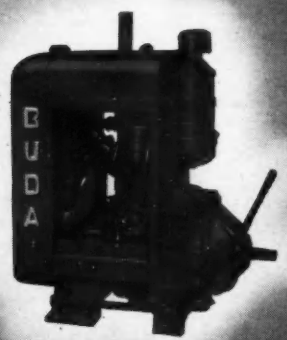
Only Buda can give of COMPLETE



From the biggest to the smallest all BUDAS are top performers

190

Buda not only gives you a choice of 190 basic engine models—industrial, automotive, marine and electric generator sets—but you also can be sure that any Buda model you select will give years of efficient, low-cost service. Today over 100,000 Buda engines are giving top performance on all kinds of applications all over the world. In addition, Buda power is now available in practically every type of equipment built by 133 leading American and foreign manufacturers.



Buda's complete range of power is dramatically illustrated by this comparison between the big 440 h.p. supercharged DCS-2505 Diesel and the 5 to 8 h.p. BD-38 Diesel power unit.

LIP... AIL ODAY!

THE BUDA COMPANY, Harvey, Ill. (Chicago Suburb)

Send complete information on ☐ Buda Engines ☐ Generator Sets

I am especially interested in .....for ..... (application)

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RANGE of POWER

As illustrated below, Buda is the *only* engine manufacturer that can effectively meet *all* of your varying requirements for industrial power. This gives you real opportunity for *engine standardization* . . . also means added flexibility and economy in solving *individual* power problems.

For example, in Buda's range of 35 industrial models — from 5 to over 400 HP — you'll find a dependable engine *exactly* fitted to your *particular* power and speed requirements. No need to sacrifice production by "stretching" a model that's too small . . . or increase your costs by using one that's too large. On most sizes you even have a choice of speed characteristics in the same power range.

In addition, Buda alone offers you a wide choice of *interchangeable* Diesel and Gas-Gasoline engines for *identical mounting*. This lets you operate on most advantageous fuel at all times . . . permits switching engines quickly on the job *without any costly changes in equipment or mountings.* You also save time and money in maintenance and servicing because Buda engines have fewer working parts and up to 85% are completely interchangeable.

Consider, too, the added convenience offered by Buda for handling *all* of your engine purchasing, engineering and service problems through *one experienced manufacturer-distributor organization.* For complete details, fill in and mail coupon on lefthand page.

Here's Proof

POWER UNITS and INDUSTRIAL ENGINES

HP RANGE (Approx.)	Buda		Mfr. "A"		Mfr. "B"		Mfr. "C"		Mfr. "D"		Mfr. "E"	
	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas
4-8	BD-38			■								■
7-17	BD-77			■								■
15-40	BD-163	B-183		■								■
17-45	BD-182	B-182		■								■
22-60	BD-230	B-230	■	■			■		■			■
25-75	BD-273	B-273	■	■			■		■		■	■
30-80	DT-317	HP-326	■	■			■		■		■	■
30-85		HP-351		■	■		■					■
35-110	DT-468	K-428	■	■	■		■		■		■	■
40-120		L-525		■			■					
45-130		LO-525		■	■							
60-115	DC-645	MO-645		■	■		■				■	■
75-180	DC-844	MO-893	■	■	■		■		■		■	■
90-225	DCS844*	MO-970		■	■							
100-240	DC-1125	MO-1290	■	■			■		■		■	■
120-300	DCS1125*						■					
120-225	DC-1611											
135-250	DC-1679	PC-1679					■					
165-330	DCS1679*	PCS1679*	■	■					■			
180-340	DC-2505	PC-2505										
225-440	DCS2505*	PCS2505*			■							

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* Supercharged

BUDA

...A Power-full name in ENGINES

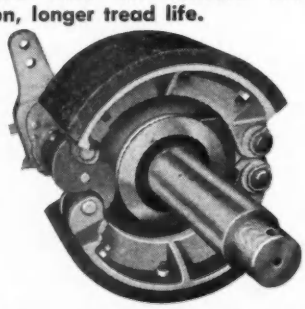
GET THESE 3
La Crosse *Plus Values*

1 *Longer tire life!*

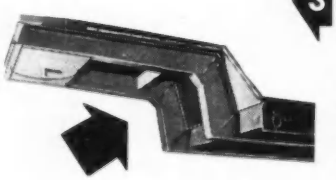
Conservative 20 m.p.h. load rating by La Crosse means added service from tires. No "phoney" load ratings . . . no skimping on plys or tire sizes. In addition, base of La Crosse rims are extra wide for reduced tension, longer tread life.

2 *Less brake trouble!*

Large constant rise "S" cam brake — 12¼" x 6" — plus LaCrosse's fast-acting, chamber-on-axle mounting, assures quick, safe stops. You also get extra tough ¾" bolted-on linings that *last up to 45% longer* than linings used on most trailers.



3 *No gooseneck failures!*



Exclusive LaCrosse tailoring gives desired main beam shape *without cutting either flange.* You get greatly increased strength and rigidity to withstand constant pounding of load concentrated on vital gooseneck.

COMPARE tires, brakes, goosenecks — the three key factors in trailer costs — and you're sure to choose LaCrosse. *Immediately available* in single, dual or tandem axle models, from 8 to 67 tons capacity . . . custom-built models to 200 tons. LC-2

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for hauling.....
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Name.....Title.....

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LaCROSSE

Low-Cost TRAILER TRANSPORTATION

Shots

(Continued from page 30)

Bureau of Reclamation had with legal advice interpreted the Congressional ceiling on pay rolls as excluding personnel paid out of trust funds advanced by water users to finance operation of certain irrigation water distribution facilities.

The new ruling makes it necessary for the Bureau of Reclamation to insist on shifting certain irrigation facilities from Federal operation to operation by irrigation districts.

Acting Secretary William E. Warne commented: "Engineering, supervisory and other personnel must be reduced so drastically under the pay roll limitation that there now is a serious question as to whether Reclamation can fully accomplish this year's $250,000,000 construction program. We are faced with greatly increased requirements for inspecting contractors' work, production and engineering designs and specifications, procurement of special equipment and supplies, and other necessary activities to keep this program rolling. Also, there is a grave question as to Reclamation's ability to carry on safe and adequate operation and maintenance of its dams, power plants, canals, transmission lines and other facilities."

Montana Awards $25,000,000 in Contracts

Montana's State Highway commission has awarded $25,000,000 worth of roadbuilding contracts since Jan. 1, 1946. According to State Highway Engineer Scott P. Hart, projects programmed under the provisions of the Federal Highway Act of 1944 are estimated to total, when entirely obligated and matched with state funds, approximately $39,000,000 or only about $14,000,000 more than has already been awarded.

Hart also commented that at the present rate of construction progress, Montana will have all funds obligated well in advance of June 30, 1951, the deadline for the 1944 act appropriations. This will enable the state to take advantage of the new Federal highway program, already approved by Congress, as soon as the funds become available.

New Equipment Cuts Blacktop Reclamation Costs

Three and one-half miles of old blacktop road in Wayne County, Michigan, were recently reclaimed by a new process requiring only three operators to rip up the old blacktop, crush it to proper size and relay it on the road. No materials were added other than a small amount of oil.

An Athey portable crusher unit—towed behind an Athey force-feed loader—eliminated the necessity of transporting to and from a central crushing plant, allowing one man to

For *STEPPED-UP* TONNAGE

NEW 30-TON MACK

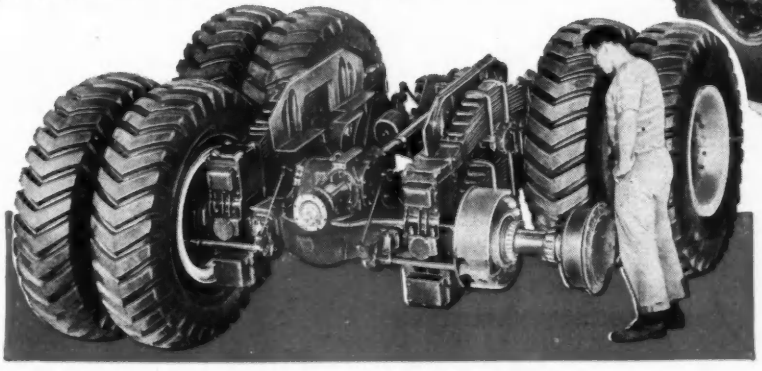
• Mack's new Model LRSW packs a 30-ton payload in its monster dump body — or pulls 55 tons as a tractor semi-trailer.

Big 275 h.p. super-charged Diesel keeps tonnage moving away from the shovels — fast. Massive frame is of alloy steel, reinforced and welded into one piece; built to stand up under the stiffest punishment. Mack's famed Balanced Bogie with exclusive Power Divider assures positive traction over difficult terrain and through slippery mud. Power steering and air-assist clutch mean easy handling, less driver fatigue, better maneuverability, safe and sure control. Roomy, all-steel cab has offset driver's seat for better vision.

No other off-highway truck offers you so many outstanding features and advantages. No other manufacturer but Mack designs and builds so many of its components in its own factories — your assurance of trucks that are perfectly co-ordinated for utmost efficiency.

Let us give you full information in terms of your particular operation. Write or call your nearest Mack branch or dealer.

Here's the famous Mack Balanced Bogie with the exclusive Power Divider which brings new standards of performance to off-highway hauling. Unusual flexibility and balance insure even tire loading, uniform braking and equal traction on all four wheels. Maintenance is reduced to a minimum because of functional design.



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TRUCKS FOR EVERY PURPOSE

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa., Plainfield, N. J.; New Brunswick, N. J., Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts. In Canada, Mack Trucks of Canada, Ltd.

• This Athey force-feed-crusher combination is streamlining reclamation of blacktop road in Wayne County, Michigan

pick up material from the road, crush it to any required size and deposit it back on the roadway in one continuous operation. As yet, the process is in the experimental stage, although results on the Wayne County project indicate that blacktop road will soon be completely rebuilt from the bottom up at a fraction of the former cost.

A Caterpillar 12 motor grader first scarified the oil road to a depth of about four inches and windrowed the material. The Athey force-feed loader picked this up and conveyed it to the portable crusher unit towed by the loader. There the material passed through breaker arms and over a screen which permitted fines to drop through to the road without entering the mill. Crushed material was then windrowed from the bottom of the machine. The two motor graders and the Athey loader and crusher were the only equipment on the job, limiting the entire crew to three operators and two flagmen.

M. N. Brown, Wayne County Superintendent, reports that the crushed material was shot with one-half gallon per yard of MC-1, and that other materials would be used on the job to determine which treatment is best for the "second-hand" material.

Highway Engineer Honored

C. S. Mullen, chief engineer for the Virginia Department of Highways, completed 40 years continuous service with that organization on November 1. At a luncheon given in his honor, he was presented a 40-year service pin.

Mullen is a graduate of the Virginia Military Institute. He entered the State service as a project engineer in 1908 and in 1909 became a resident engineer. In 1915 he was appointed district engineer. He was made chief engineer in 1924.

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You can depend on Preformed "HERCULES" (Red Strand) Wire Rope for top-notch performance. Its easy handling . . . its smooth spooling . . . its unusual endurance — make for faster work, longer life and lower operating cost.

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WON'T QUIT OR CAUSE TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
THE HAYWARD CO.
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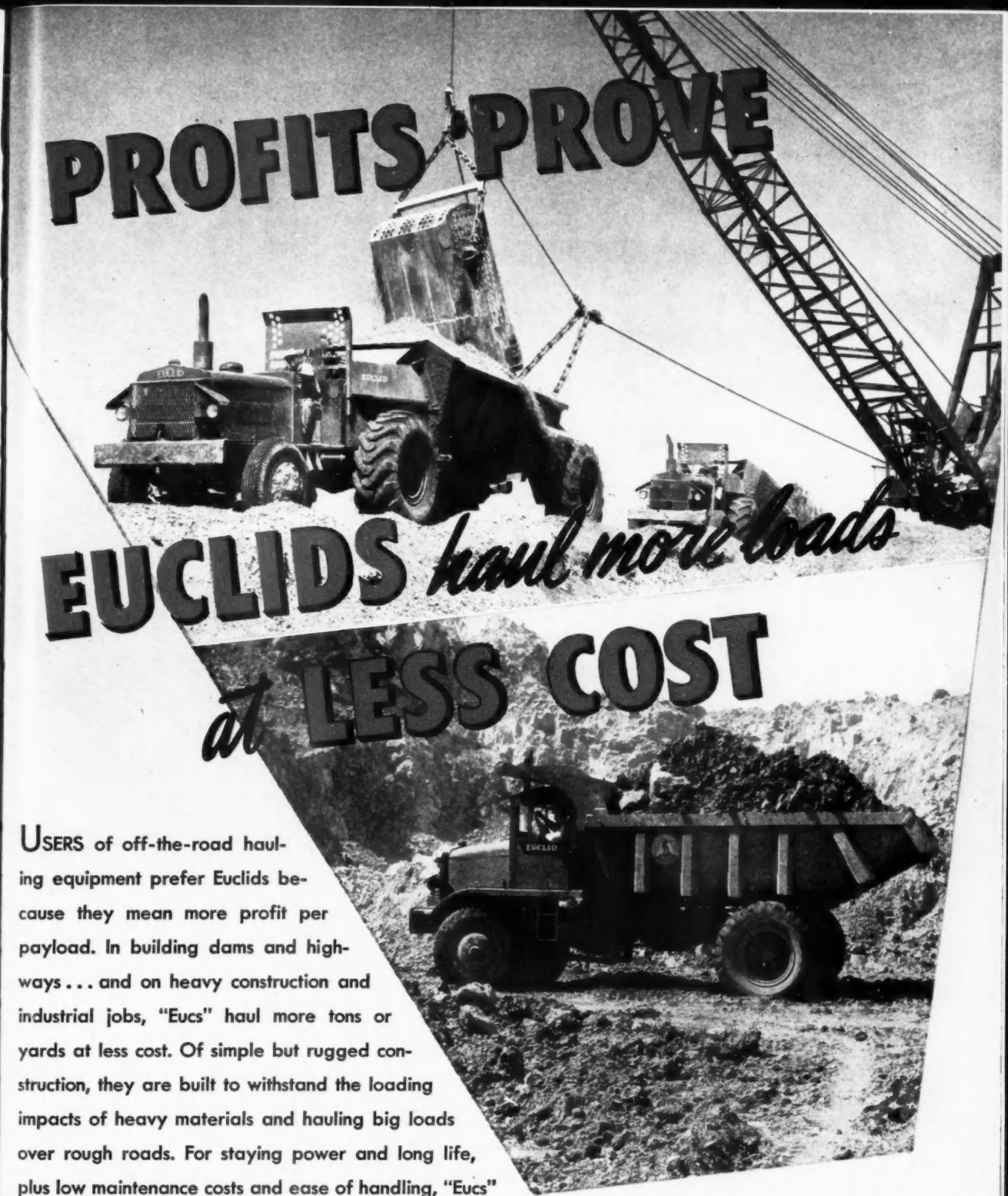
PROFITS PROVE



EUCLIDS *haul more loads at* LESS COST

USERS of off-the-road hauling equipment prefer Euclids because they mean more profit per payload. In building dams and highways . . . and on heavy construction and industrial jobs, "Eucs" haul more tons or yards at less cost. Of simple but rugged construction, they are built to withstand the loading impacts of heavy materials and hauling big loads over rough roads. For staying power and long life, plus low maintenance costs and ease of handling, "Eucs" are first choice of many leading contractors and industrials.

The EUCLID ROAD MACHINERY Co.
Cleveland 17, Ohio

EUCLIDS *Move the Earth*

Save 50% on Repair-Part Costs

Hard-surface with P&H Hartop electrodes—make your equipment last longer, produce more

Take a good look at this sprocket. Though badly worn, it is being built up with P&H Hartop. When the hard-surfacing is finished, this sprocket will cost ½ as much as a new one and will last 2 to 3 times longer. For Hartop's hard, protective coating gives you that much extra service. That's why using Hartop is a quick, low-cost way for you to keep your equipment at work longer, make it more productive. Hartop comes to you in handy weather-proof containers. You owe it to yourself to have a supply of these easy-to-use electrodes on hand. Four different types are available to give you the hardness you need:

Hartop Brown gives you a Rockwell C hardness of 35-40.

Hartop Green has a Rockwell C hardness of 45-50.

Hartop Red is still harder, giving you a Rockwell C hardness of 50-55.

And Hartop Yellow is the hardest electrode in the group — its Rockwell C reading is 58-63.

Use Hartop to keep your maintenance costs down and your production up. Ask your P&H distributor for our trial package containing all 4 types of these money-saving electrodes. It costs only $4.25. If he can't supply you, write us.

P&H WELDING ELECTRODES
4517 West National Avenue
Milwaukee 14, Wisconsin
HARNISCHFEGER CORPORATION

New Equipment

(Continued from page 26)

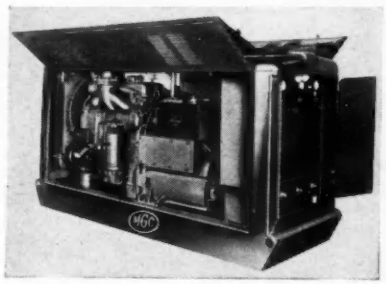
ing shank in the bit. This shank has a V-spline which holds once it is driven into the socket.

To remove the worn bit a drift pin is placed in a slot in the bit holder and a sharp blow on the pin is applied with a hammer, making the bit pop out. In field tests under various conditions, no bit has given any indication of coming loose from the holder or loosening up in the holder.

Gasoline and Diesel Generators

Manufacturer: Motor Generator Corporation, Hobart Square, Troy, Ohio.

Claims: The new "MGC" engine-generator sets which are



available in AC output, single or three phase, 50 or 60 cycle, and in sizes from 5 kw to 60 kw are each self-contained and fully equipped with controls, radiator, fuel tank and weatherproof canopy. The units are delivered factory-assembled and wired complete ready to put into service. The AC generators are of the revolving-field type and with direct-connected exciter and built-in automatic voltage regulators.

DC generators are of the compound-wound interpole type and are available in any size, 5 kw through 60 kw. These generators are directly connected to the engine by a flanged coupling. AC or DC generators up to 25 kw are available with gasoline engine, whereas units with 20 kw through 60 kw ratings have diesel engines.

Buy . . .

U. S. Security Bonds

. . . NOW

a thousand and one

job-proved wire ropes

There's a Macwhyte rope
that's the right rope
for your equipment

Use PREformed Whyte Strand for easy handling and longer service.

Macwhyte Distributors and Mill Depots — carry stocks for immediate delivery. For maximum safety, service and economy, ask Macwhyte representatives to recommend the correct rope for your equipment. Catalog G-15 on request.

MACWHYTE COMPANY

2903 Fourteenth Avenue • Kenosha, Wisconsin

Manufacturers of
Internally Lubricated Wire Rope, Braided Wire Rope Slings, Aircraft Cable and Assemblies.
Distributors throughout U. S. and other countries.

Mill Depots:
New York
Pittsburgh
Chicago
Minneapolis
Fort Worth
Portland
Seattle
San Francisco
Los Angeles

EASY TO ASSEMBLE

Wedglok

PATENTED

SAFETY CONNECTING LINKS

A vastly improved connecting link that combines safety with unique simplicity. Its strength exceeds the published strength of comparable alloy chain . . . assembles rapidly without the use of special equipment.

DRAGLINE BUCKET EQUIPPED WITH *Wedglok* SAFETY LINKS

The ease of assembly makes WEDGLOK particularly useful for dragline buckets, slings and other equipment or machinery requiring the attachment of chain or wire rope. Produced in both regular and pear shape. Sizes ⅜" to 2½".

Write for price list and data sheet.

•

SAFETY • STRENGTH • SIMPLICITY • ENDURANCE

A PRODUCT OF

INTERSTATE DROP FORGE CO.

4077 N. 27TH. ST. MILWAUKEE 9, WISC.

Heartbeat

(Continued from page 22)

trucks operated. The excavated material was stock-piled close by for the backfill and embankment work. The cut went down to El. minus 25.

A tough, expensive, and time-consuming portion of the contractor's job is "steel or timber piles" into the foundation to a "minimum total penetration of 40 feet and until . . . resistance is 70,000 pounds." While that resistance can be obtained at a depth considerably less than 40 feet, due to a stratum of blue clay, the 40-foot depth is required as insurance against earthquake hazard.

Test piles were hammered into the earth by the 5,000-lb. blows of the steam-operated, pile driving machine. Geologists and engineers of the Bureau of Reclamation and the contractor conferred long and late, and agreed that the best way to handle the job was to pre-bore the holes by drill rig to within a few feet of the 40-foot depth, then sink the piles with the

(Continued on page 44)

YOU'LL FIND IT ON PAGE 20

Among general contractors, one of the most popular Blaw-Knox Buckets is No. 672, rated ¾ Cu. Yd. It's a general purpose two-line, lever arm type that digs like a mole. On page 20 of Catalog 2076, there's a photo of it at work, and on page 34 you will find a complete table of weight, measurements and other data you need. Of the more than 100 types and sizes of Blaw-Knox Buckets, this may be the one to speed your work. Write us for *Catalog No. 2076.*

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2074 Farmers Bank Building
Pittsburgh 22, Pa.

Bucket Selection Made EASY
Catalog 2076

BLAW-KNOX CLAMSHELL BUCKETS

Follow the lead of the leaders

Take a look at the excavating industry. Notice how consistently the leaders are Bucyrus-Erie equipped.

One reason they're leaders is that they recognize good equipment. They know it pays to choose machines that deliver steady high production . . . machines that stay on the job and out of the shop.

So follow the lead of the leaders. You'll find that for sustained output in rock or dirt your best buy is Bucyrus! 136E48C

BUCYRUS ERIE

The BEST buy Bucyrus, the best BUY in excavators

Bucyrus-Erie Company
South Milwaukee, Wisconsin

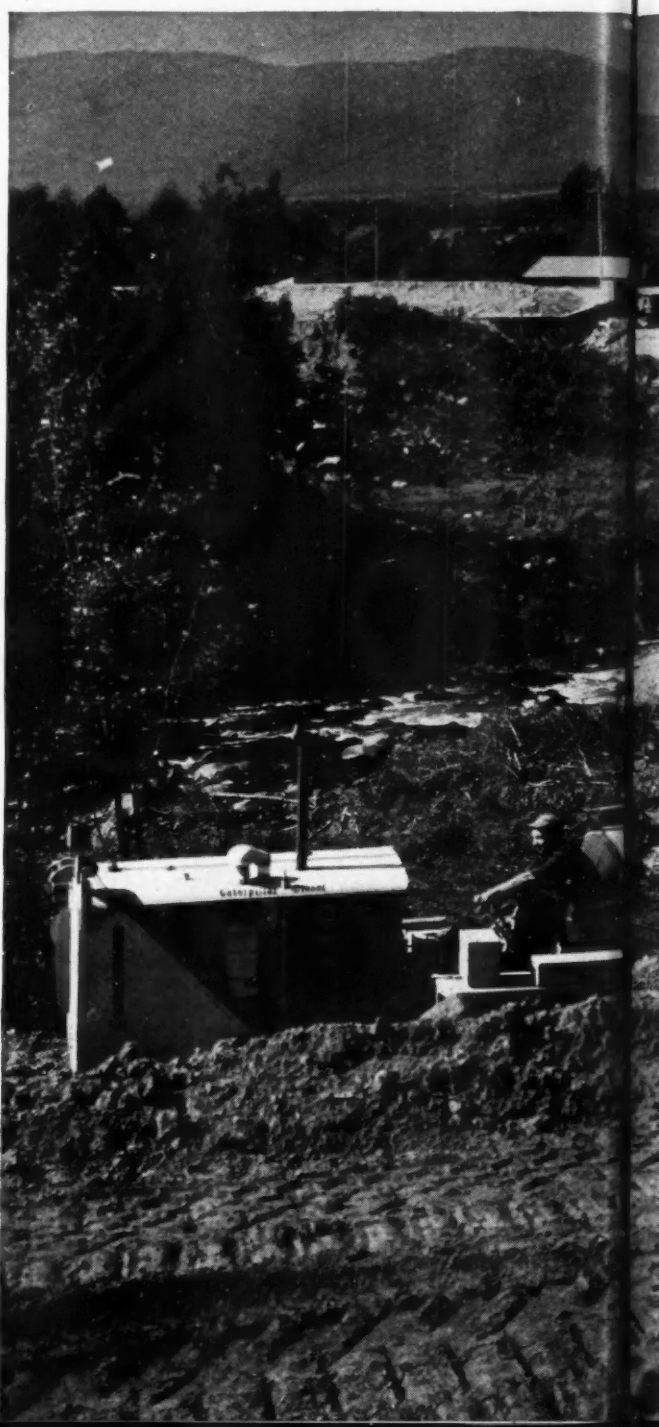
Turning Hardpan

Almost any equipment will get by when the going is easy. Making money on the tough jobs is something else again. That's when a contractor needs "Caterpillar" Diesels.

Waggaman & Collyer, Glens Falls, N. Y., are using a total of 15 "Caterpillar" Diesel D8 and D7 Tractors on their 250,000-yard excavation job for the new Saranac River hydro-electric dam. The material they're moving is heavy hardpan, full of rocks and boulders. As experienced contractors they were already well acquainted with the power and tough dependability of "Caterpillar" Diesel Tractors, and enthusiastic over "Caterpillar" Bulldozers. But the fine performance of the matched "Caterpillar" No. 80 and No. 70 Scrapers has really opened their eyes. Says Superintendent Al Greenwood:

"'Caterpillar' Scrapers are the best units on the job. They'll load hardpan that the others will hardly touch. It's the shape of the cutting edge that does it. And as for those 'Caterpillar' cable controls—they're sweethearts!"

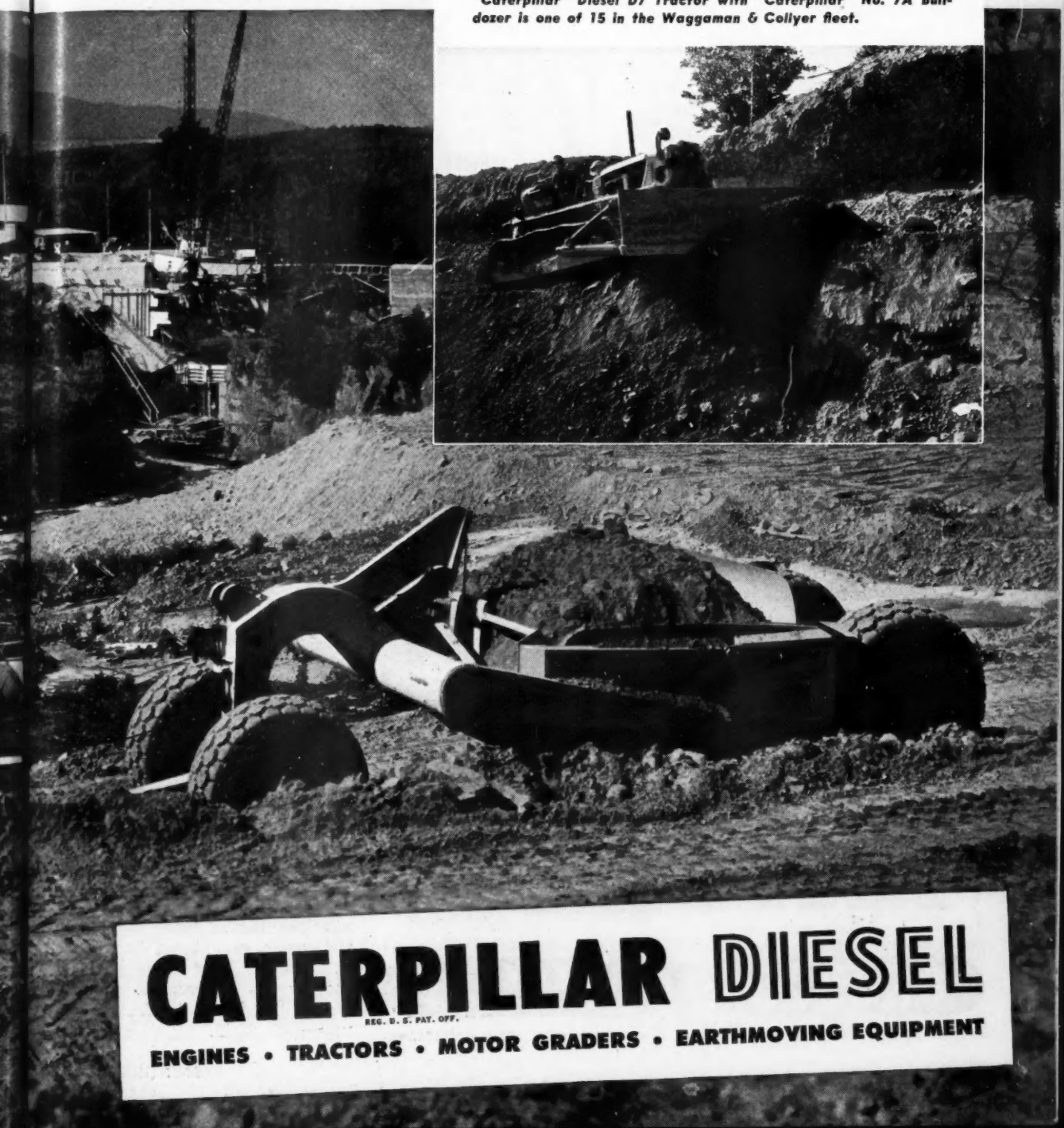
CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS



A "Caterpillar" Diesel D8 Tractor with matched "Caterpillar" No. 80 Scraper moves earth to clear a channel to the tunnel on the Saranac River dam project.

n Into Hard Cash

Hardpan like this means hard going for 'dozers and scrapers. The "Caterpillar" Diesel D7 Tractor with "Caterpillar" No. 7A Bull-dozer is one of 15 in the Waggaman & Collyer fleet.



CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

Heartbeat

(Continued from page 40)

hammer blows of the piledriver. The result is an earthquake-resistant, compacted earth foundation, 40 feet deep, an acre in size, and reinforced with 3,000 timber piles.

After installation of electrical and mechanical equipment, power lines, etc., the Tracy Pumping Plant and its six 22,500-horsepower motors will lift 4600 cu. ft. of water each second through three 15-ft. diameter, mile-long, discharge pipes that climb 200 feet to the Delta-Mendota Canal. Thence the water, which began its journey at Shasta Dam far north on the Sacramento River, flows by gravity 120 miles to Mendota Pool. There it will take on the irrigation job previously performed by the San Joaquin River. Now blocked by Friant Dam, the San Joaquin water will be sent north and south through the Madera and Friant-Kern canals to the needy lands of the San Joaquin Valley.

The contractor's project manager on the job is George Waters of the Stolte Branch of the firm. Difficulties met have been fewer, he says, than had been expected. Subsurface water and the problem of de-watering the site haven't loomed as large as the firm had figured. But there's still much work to do and it will be some time before the first water is pumped into the Delta-Mendota Canal.

Provides Performance Never Before Attainable In Small Type Excavating Equipment

Model 310 General ¾ Cu. Yd. Power Shovel.

Among the numerous advantages of this new type, crawler mounted GENERAL are 100% air control of basic motions through an air actuated, finger touch lever system . . . "Air Cushion Clutch" on reversing and retract mechanisms . . . bigger, easier operating brakes . . . larger shafts and liberal use of anti-friction bearings . . . deck gears recessed, fully enclosed, and running in oil . . . live, independent, worm driven boom-hoist with power up and power down for Crane, Dragline, and Clamshell service . . . independent travel, two speeds in either direction, steers without stopping . . . drumshaft operates in anti-friction bearings and end is capped with a lifetime, dustproof, GENERAL designed seal.

The GENERAL MODEL 310 is available with independent chain crowd shovel boom assembly, with crane boom for clamshell, dragline, and hookblock work, and as a hoe. Boom assemblies can be changed with a minimum of effort in the field.

●

These new features with the many others provided on the Model 310 give you increased earning power which will pay for the cost of the machine in a very short time. Write for complete details.

POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO. O-G THE GENERAL CO.
EXCAVATOR
MARION OHIO

DIESEL GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

Cutting Coriba

(Continued from page 17)

5,800 yards at $3.70 per yard, $21,460; furnishing and placing 350 tons of 121-150 asphalt at $35 per ton, $12,250; furnishing and placing 50 tons of RC-3 asphalt at $36.50 per ton, $1,825 and furnishing and placing 80 tons of RC-3 in binder course at $36.50 per ton, $2,920. The contract totals $171,000.

Because most of the Leonard and Slate equipment being used was new or completely overhauled before starting in the hard Coriba, Superintendent Miller had had to wrestle with very few maintenance problems. However, hard rock usually means double wear on the job and he expects breakdowns in the same proportion. Tire wear is higher on runs over the hard rock, the extent depending on the skill of the drivers. The Tournapulls and Tournatrailers have U. S. Rubber and Goodyear tires on the wheels.

Maintenance shops are mostly makeshift, consisting of one two-truck shed and a connected parts-room. Because the shed was needed from the beginning of the project, it was placed at a point where the old highway crosses the new route. It will be moved later with two D-8 Cats. Shell petroleum products are used for servicing equipment. Greasing is a daily ritual with Leonard & Slate who find it the easy way to keep equipment in operating condition.

Blasting and moving tons of hard Coriba basalt is no easy job, but it has one advantage—the nine months of rainy season in the coastal mountains do not bog down a job that is 80 per cent rock work. Progress to date indicates that it will finish on schedule—Fall, 1949.

YOU'LL GET A SIDE ORDER OF PROFITS

. . . with a Bucyrus-Erie 21-W or 22-W water well drill in hand. Just the dish for contractors whose blast hole drilling requirements won't keep a blast hole drill busy full time, these versatile rigs can double for profits — handling rock preparation and then earning money on the side, on contract, rental, or water well jobs.

They can put down blast holes with the speed and power that means fast footage, and they have all the spooling capacity needed to drill the deeper holes required for water well work.

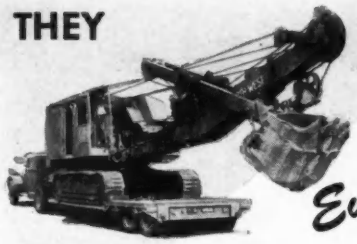
Check up on this side order of profits when you plan your new equipment purchases.

52W48

BUCYRUS ERIE

BUCYRUS-ERIE CO.
South Milwaukee, Wis.

THEY



Roll Along

on ROGERS TRAILERS

Everyday Everywhere

MORE AND BIGGER LOADS

An impressive number of the biggest contractors TODAY repeatedly put their confidence in ROGERS TRAILERS long proven ability to "deliver the goods" and "stand the gaff" over long periods of heavy usage.

Smaller operators, too, find in the extensive ROGERS LINE, the answer to their particular trailer requirements with proper capacity, road clearance, type of construction and strength with lightness.

We solicit inquiries which make your trailer problems our problems and we generally come up with the correct answer.

ROGERS HEAVY DUTY Gooseneck Trailers

ROGERS BROTHERS CORPORATION
DESIGNERS and BUILDERS of HEAVY DUTY TRAILERS
SINCE 1915

136 ORCHARD ST. ALBION, PENNA.

Sauerman Power Scraper cuts into high sand-bank; moves 1,000 tons a day to plant.

This Sauerman Slackline Cableway lifts gravel from river to hopper on bank; loads twelve cars a day.

Handle Material Faster, Cheaper

with a

SAUERMAN MACHINE

SPEED is the great need of these busy times and that is what you are assured, at minimum expense, when you use a Sauerman Cableway or Scraper machine for your dig-and-haul jobs.

A Sauerman machine can be installed to reach across a pit, pond, river or stockpile or up to the top of a hill and will move material at high speed from one point to another anywhere within its wide radius of operation.

Sauerman machines are backed by 40 years of specialized experience in designing this type of equipment. Whether it is an installation to handle a hundred tons or many thousand tons per day, it will be efficient and economical and easily operated by one man.

WRITE FOR CATALOG

SAUERMAN BROS., INC.
574 S. Clinton St. Chicago 7, Ill.

Beating Nature's

○ Long range at work. Correale Construction Company's 1150-B walking dragline easily handles the deep overburden in anthracite stripping operations at Minersville, Pa.

● The long reach of this 1150-B — it has a 215-foot boom — enables it to spoil overburden far from the digging point. This machine is stripping phosphate near Bartow, Florida.

● Soft footing doesn't hamper this 650-B dragline as it strips away overburden from phate matrix near Eaton Park, Florida. This has a 175-foot boom and 16-yard bucket.

Restrictions

With RANGE, SPEED, OUTPUT, ECONOMY

ONLY a few years ago many stripping operations now being successfully worked lay undeveloped because conditions imposed prohibitive costs. Extremely deep overburden, necessity for spoiling far from the digging point, hard-to-dig materials, soft footing—these and other factors made the stripping costs excessive.

Today such workings have been converted into profitable mining operations by machines able to perform economically in the face of the extreme conditions. The Bucyrus-Erie 1150-B and 650-B walking draglines are typical of such machines. These long-range units, with booms ranging in length to 250 feet, easily peel off the deep overburden and deposit it well out of the way. Their great strength, capacity and power are more than a match for the toughest stripping service. Their sure-footed walking traction mountings and large area bases permit traveling over and working on ground soft enough to bog other machines down. Their fast action and highly responsive electrical control result in fast overall digging cycles that are easy to maintain for a continued high-production pace.

Design and construction of these outstanding machines are a direct result of Bucyrus-Erie's intensive knowledge of stripping problems and its wide general background of experience in building excavating equipment of all types. For 67 years, Bucyrus-Erie has kept in constant close contact with your excavating problems — has introduced most of the major improvements in excavating equipment. The 1150-B and 650-B walking draglines are new reminders that it pays to look to Bucyrus-Erie for excavating equipment of all sizes that is "years ahead" in range, speed, output, and economy.

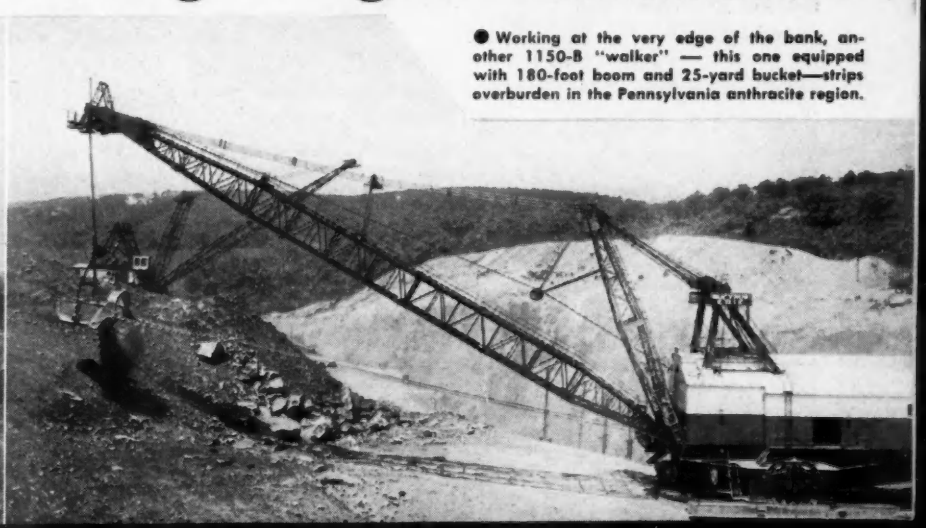
BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

43L47C

BUCYRUS ERIE

Walking Draglines

Booms to 250 feet; Buckets to 25 cubic yards



● Working at the very edge of the bank, another 1150-B "walker" — this one equipped with 180-foot boom and 25-yard bucket—strips overburden in the Pennsylvania anthracite region.

Drilling Safety

(Continued from page 19)

Ice and other winter hazards increase the danger. Although injuries incurred in getting to a working place often are not serious, the operator should realize the hazards and should be instructed to take precautions against them.

Inspection of rock to be drilled is an essential precaution. Because of failure to count shots, or for other reasons, operators have drilled into unexploded charges and been killed or seriously injured. After one such accident one company adopted the practice of marking with red paint all rock to be blasted.

• If there is any doubt about the safety of a location, watchers should be posted to warn the operator.

Rock also should be checked for stability and examined for the spot which will afford the firmest footing. Sprained ankles and fractured ribs have resulted from falls caused by unsteady rocks and insecure drilling positions.

Care should be taken in getting on and off rocks before and after drilling. Operators have slipped and fallen because they did not observe loose or rounded stones which turned underfoot. It is safer to place the drill and other equipment on the rock before getting up or down than it is to carry a load in the hands.

• Personal protective equipment should be readily available to operators.

Safety in drilling requires that the operator face the bank and take the position that will avoid overbalancing and falling from the rock. To avoid foot and leg injuries in case the steel breaks, strikes a pocket, or jumps when the hole is started, the feet should be spread about 18 inches. The operator should stand back as far as practical from the drill and should not lean on the handle.

Choice of the HEAVIES

GATKE *Custom-Bilt* BRAKE BLOCKS and LINERS

for Trucks, Tractors Trailers, Buses, Cars and all Kinds of Equipment

Excavating, Construction and Road Building Contractors from Coast-to-Coast use GATKE *Custom-Bilt* Brake Blocks because they provide—

Extra performance under all traffic conditions.

Smooth, non-grabbing action for prolonged tire life and reduced strain on drivers and equipment.

Extra Wear Life to keep brakes safe for the road with fewer adjustments and less maintenance cost.

RESULTS TALK—Use GATKE *Custom-Bilt* Brake Blocks for your next five relines and compare.

Ask your GATKE Jobber or write.

Gatke CORPORATION 232 N. La Salle St. Chicago 1 Illinois

A good grip on the handle is essential, and the hole should be collared at low speed. The practice of guiding the drill steel with the foot, or throwing a leg over the handle while drilling is unsafe.

If a jackhammer operator does any blasting he should know and follow all standard precautions

• Rock should be inspected before drilling in case an unexploded charge remains.

governing the transportation, loading, lighting and other aspects of handling explosives. Taking proper shelter when holes are shot is particularly important. Violation of this safe practice is one of the most frequent causes of fatal accidents to operators and other quarry employees.

WORN TEETH WON'T BITE!

REBUILD EFFECTIVELY—ECONOMICALLY

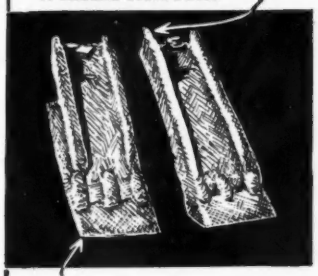
with . . . MANGANAL

(Trade Mark Reg. U. S. Pat. Off.)

11-13½% MANGANESE-NICKEL STEEL

HOT-ROLLED WEDGE BARS

Use MANGANAL ROUNDS to Rebuild Teeth Faces



Use MANGANAL WEDGES to Rebuild Points

Teeth repointed with MANGANAL HOT-ROLLED WEDGE BARS often outlast new cast Manganese steel teeth. They are far denser than castings and are free from blowholes, porosity and other imperfections. MANGANAL HOT-ROLLED WEDGE BARS are not harmed by the heat of flame-cutting or welding, and may be bent hot or cold or forged. Workharden under impact and abrasion. Come in 8 sizes to meet every requirement. For strongest welds, use MANGANAL BARE or SPECIAL TITE-KOTE electrodes for attaching WEDGE BARS.

FREE: The "MANGANAL MARKETER" offers Helpful Hints on welding 11 to 14% Manganese-Nickel Steel. Write for your copy today!

STULZ-SICKLES CO.

SOLE PRODUCERS

91 N. J. Railroad Ave. Newark 5, N. J.

NAME OF NEAREST DISTRIBUTOR ON REQUEST

GREATER YARDAGE! LOWER COST!

SEND FOR BULLETIN

WELLMAN *Williams* WELDED BUCKETS

Wellman Buckets cost less to maintain because they are ruggedly built. They deliver bigger payloads because they are properly designed. The superior engineering in Wellman Buckets gives the operator better balance, easier handling, cleaner digging. Wellman pioneered the unique construction that pays off in greater yardage at lower costs. There's a Wellman Bucket for every service.

THE WELLMAN ENGINEERING COMPANY

7002 CENTRAL AVENUE CLEVELAND 4, OHIO

NOT in the *Contract*

Counsel to police witness—But if a man is in the middle of the road on his hands and knees, that doesn't necessarily prove that he was intoxicated.

Policeman—No sir, it doesn't, but this man was trying to roll up the white stripe!

The new clerk, dictating, was in doubt as to the use of a certain phrase, so turning to his stenographer, he asked: "Do you retire a loan?" And the wistful-eyed one replied, rather coyly: "No, I sleep with Mama."

"I understand you are courting a widow. Has she given you any encouragement?"

"I'll say she has. Last night she asked me if I snored."

The big contractor was giving fatherly advice to his son who was going into business for himself.

"Son, I want to impress upon you at the start—honesty is the best policy."

"Yes, Dad, I'll remember that."

"And, by the way," added his father, "I'd advise you to read up on corporation law; you'll be surprised at the number of things you can do in business and still be honest."

The Vicar's wife had just died, and wishing to be temporarily relieved of his duties, he wrote to his bishop:

"I regret to inform you that my wife has just died. Will you please send me a substitute for the week-end?"

"Gold-Gold-Gold! Can't you dig up any fossils?"

He lived on the border between Russia and Poland and he worried about it for years. "I'm a man without a country," he said. "I don't know where I live." So eventually, he got a state surveyor to swing around his way and make a careful survey. "You live," decided the surveyor, "in Poland."

The Pole hurled his hat in the air with a cheer "Thank God!" he cried. "No more of those terrible Russian winters!"

First Hitch Hiker: "Why are you thumbing your nose at all the passing cars?"

Second H. H.: "This is my lunch hour."

Sailor: "I can't marry you. We have nothing in common. Why, you wouldn't even know port from starboard."

Girl: "Well, I could look at the label on the bottle, couldn't I?"

"I've been watching that mechanic for the last fifteen minutes. There's a man who really knows his business. He didn't spill a drop of oil on the ground. He put the hood down gently, fastened it securely, and left no fingerprints on it. He wiped his hands on a clean tissue before opening the door, spread a clean cloth over the upholstery, meshed the gears noiselessly, and drove carefully out into the street."

"Yes, that's his own car."

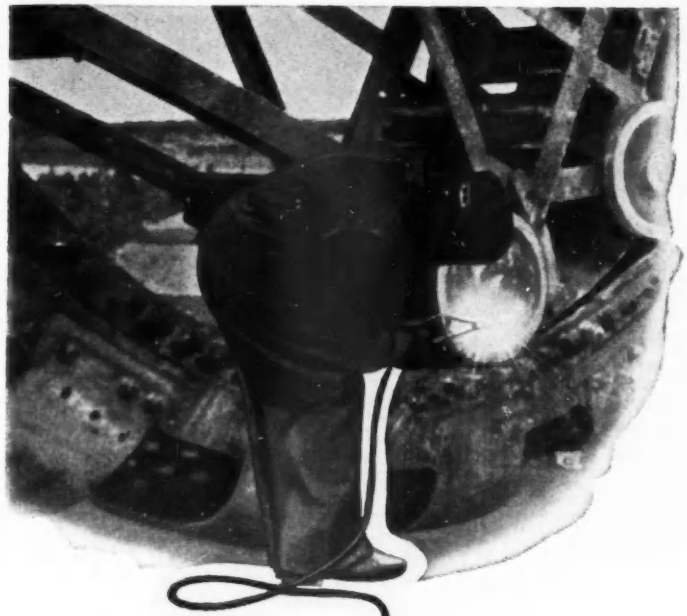
They were on their honeymoon. He had bought a boat and had taken her out to show her how well he could handle it, putting her to tend the sheet. A puff of wind and he shouted in no uncertain tone: "Let go the sheet!"

No response.

Then again: "Let go that sheet, quick!"

Still no movement. A few minutes later, when both were clinging to the bottom of the overturned boat, he said: "Why didn't you let go that sheet when I told you to, dear?"

"I would have," said the bride, "if you had not been so rough about it. You ought to speak more kindly to your wife."



No Loitering *on the Job*

A **P&H** *Portable Welder gets to the breakdown fast, saving you costly downtime and maintenance money*

Jobs keep moving at a money-making pace when you have a P&H Portable Welder handy. A ditcher breaks down, or a bulldozer, or a shovel. By towing a P&H welder to the machine, you can repair it quickly and easily. Portability is also a basic requirement for welders used on pipe line jobs.

But portability isn't the only thing that a P&H Welder has to offer. Check these advantages:

Easy operation—only one heat control is used to regulate the welding capacity of the generator. Arc response is automatic on all classes of work and with all types of electrodes. Visimatic plate enables you to select just the heat you want. There are no dials or gadgets to cause confusion.

Low fuel consumption and longer engine life—P&H portable welders have an idling device that reduces engine speed when the arc is broken. That is why you save money on fuel and engine repairs with a portable P&H welder.

A long-life, time-proven generator—The generator used in P&H portable welders is patterned after the P&H welders used so successfully in thousands of industrial plants throughout the country. It has only two major parts—the rigid frame and a compact rotating member. The rotating member is balanced on a Dynetric balancing machine, and the resulting smooth operation provides troublefree service. A powerful air stream cools the unit; special insulation coatings resist heat and assure high efficiencies.

Owning a P&H portable welder is like having liquid assets—it is always there when you want it and you can take it wherever you need its services. Two models are available: the WN-200 with a welding service range of 30 to 260 amps, and the WN-300 with a range from 30 to 375 amps.

Invest in job insurance—get a P&H portable welder. See your nearest P&H representative or distributor. Write us for bulletins.

P&H **ARC WELDERS**
4517 W. National Avenue
Milwaukee 14, Wisconsin

HARNISCHFEGER CORPORATION

Notes from the manufacturers

Allis-Chalmers Manufacturing Company, Tractor Division, Milwaukee, Wisconsin, announces that V. M. Holloway, Northwest Industrial Territory Manager, has been promoted to Assistant Industrial Sales Manager.

Link-Belt Speeder Corporation, Chicago, Illinois, announces the appointment of Robert B. Barnes as sales manager, succeeding Hayes Parsons, who has retired because of illness. For the past four years, Barnes has been assistant sales manager, previously a district representative in the southeastern territory.

Mack Trucks, Incorporated, New York City, New York, announces the appointments of C. F. Larsen as Manager of General Service and C. A. Slifer as assistant. Both men will make their headquarters at the company's plant in Plainfield, N. J.

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, has appointed Richard M. Stone Industrial Sales Manager. Mr. Stone succeeds William J. Faulkner who has resigned to become Vice President and part owner of Frantz Tractor Company, Allis-Chalmers New York distributor.

The Tyson Bearing Corporation, Massilon, Ohio, announced the appointment of R. A. Rodriguez, Incorported, 55 West 42nd Street, New York City, as Export Representative for all foreign countries except Canada.

The Electric Sprayit Company, Sheboygan, Wisconsin, has taken over the complete manufacturing rights, inventory, and tooling for the production of the line of stationary compressors formerly manufactured by the Auto Compressor Company, Wilmington, Ohio.

Pennsylvania Refining Company, Cleveland 4, Ohio, has made several recent appointments. Frank D. Messenger has been named manufacturer's representative for the complete heavy duty line of Penn Drake Motor products in the lower Michigan peninsula. His headquarters are being maintained at Fair Haven, Michigan. Four new sales representatives for Penn Drake Gumout are the Glen T. Lees Associates of Minneapolis, Minnesota, who will cover North Dakota, South Dakota, Minnesota and northwestern Wisconsin; A. C. Doherty and Company of Boston, Massachusetts, who will serve Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island; Hattendorf Sales Company of Atchison, Kansas, who will represent the company in Missouri, Kansas, Iowa and Nebraska; and General Sales Associates of Nashville, Tennessee, who will take charge of sales in Tennessee, Alabama and Mississippi.

General Tire and Rubber Company, New York, New York, announces the installation of a new wholesale branch sales operation at 1725 Summit Avenue, Richmond, Virginia, under the direction of John W. Bogle. Other staff members appointed to the Richmond branch are Paul J. Snyder, manager of truck tire sales; L. F. Roberts, car dealer sales; H. W. McAllister, office and operating manager; and Stuart G. Mercer, service manager.

Union Wire Rope Corporation, Kansas City, Missouri, has made several new appointments in its sales force. R. B. Boand, formerly district manager at Chicago, has been selected to head a new sales division for machine-braided sling rope, with headquarters at the home office. The Chicago post is being taken by D. B. Currence. New sales representatives are: J. J. Lester, in Oklahoma, with offices at Oklahoma City; C. L. Conway, in Kansas, with offices at Kansas City, Missouri; L. A. Davis in Montana, South Dakota, Minnesota and Wisconsin, with offices at Minneapolis, and D. E. Bedord, in Iowa and Nebraska, with offices in Kansas City, Missouri.

George Haiss Manufacturing Company, Incorporated, division of Pettibone Mulliken Corporation, New York and Chicago, has appointed John F. Day, Buffalo, as exclusive sales representative for the northwestern sections of New York and Pennsylvania. J. Benatar of Brooklyn, New York, is new sales representative in five boroughs of New York City.

Caterpillar Tractor Company, Peoria, Illinois, has appointed Gerald W. Wilson and William F. Jordan as district representatives in the Eastern sales division. Wilson, who replaces F. S. Foster, new assistant Eastern sales manager, will contact dealers in northern Georgia, South Carolina, and eastern Tennessee. Jordan, successor to R. E. Jeffries, who recently joined the Missouri Valley Machinery Company, Caterpillar distributor at

DREDGES

HYDRAULIC DIPPER CLAMSHELL

Bolted sectional steel hulls for landlocked, inland waters

If you need a dredge, write us!

AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1 · INDIANA · U.S.A.

DESIGNERS AND BUILDERS OF DREDGING EQUIPMENT SINCE 1905

OWEN BUCKETS *are popular* *for* **LOW HEADROOM**

and thus are more adaptable to various operating conditions.

Owen Bucket heads are one-piece alloy steel castings, light enough to prevent top heaviness and designed for rigid arm connections.

Special head design eliminates wear on upper arm ends. Rack and wobble is prevented.

The Owen Bucket Company
609 Breakwater Avenue, Cleveland, Ohio
Branches: New York • Philadelphia • Chicago • Berkeley, Cal.

Omaha, will serve northern Ohio, Michigan and West Virginia.

Raybestos-Manhattan, Incorporated, Passaic, New Jersey, announces its new warehouse and office at 4651 Pacific Boulevard, Los Angeles 11, to service and stock rubber goods and packings for industrial requirements in southern California. The warehouse will be in charge of Schuyler V. V. Hoffman, and is part of the West Coast division sales headquarters, San Francisco.

Gradall Division, Warner and Swasey Company, Cleveland, Ohio, announces the appointment of E. H. Kliebenstein Company and Tyler-Preusser Incorporated, as distributors for Gradall. The Kliebenstein Company, Hendricks Causeway, Ridgefield, New Jersey, will handle sales and service in northern New Jersey; Tyler-Preusser, newly established firm of equipment specialists at Boston Post Road, Pelham Manor, New York, will serve metropolitan New York and the Long Island area.

GarWood Industries, Incorporated, Wayne, Michigan, announce the promotion of R. D. Hiller, Jr., to South Central regional manager with headquarters at Tulsa, Oklahoma. Formerly a district manager in the Southwest, Hiller's region consists of Nebraska, Kansas, Missouri, Oklahoma, Arkansas, most of Texas, Louisiana, and Mississippi, and part of Tennessee, Kentucky and Illinois. W. A. Williams will take his place as district manager. Effective October 15th, W. H. Hammond resigned as vice-president of sales to assume a distributorship. E. B. Hill, general sales manager, has assumed overall responsibility for sale and distribution.

Osgood Company, and its associate, General Excavator Company of Marion, Ohio, announce the appointment of Kenneth Williamson as district sales manager for Arizona, Colorado, New Mexico, Utah, Wyoming and parts of Idaho, Montana and Nebraska. He will maintain offices with the Power Equipment Corporation at Denver, Colorado.

Euclid Road Machinery Company, Cleveland 17, Ohio, has appointed V. L. Snow, formerly manager of sales development, to the post of sales manager. R. M. Brown succeeds him.

The Wellman Engineering Company, Cleveland 4, Ohio, announces the appointment of Jack R. Gregson as Eastern District Sales Manager of the firm's Bucket Department. He will make his headquarters at 2612 Graybar Building, 420 Lexington Avenue, New York, New York.

The Frank G. Hough Company, Libertyville, Illinois, announces that G. A. Gilbertson, former Assistant Sales Manager of the Industrial Power Division, International Harvester Company, has joined Hough as Vice President.

SURPLUS STOCK SALE!

7 Brand New Gear and Wheel Pullers

Popular Size Model No. 1004

The harder the pull, the tighter the arms hug the work. Made of heavy one-piece forged steel yoke. Heat treated forged steel arms and straps.

Will take gears, wheels, etc., up to 18" in diameter.

Diameter	18"
Reach	15½"
Diameter, Screw	1¼"
Length, Screw	16"
Hole adjustment	3 hole
Weight	40 lbs.

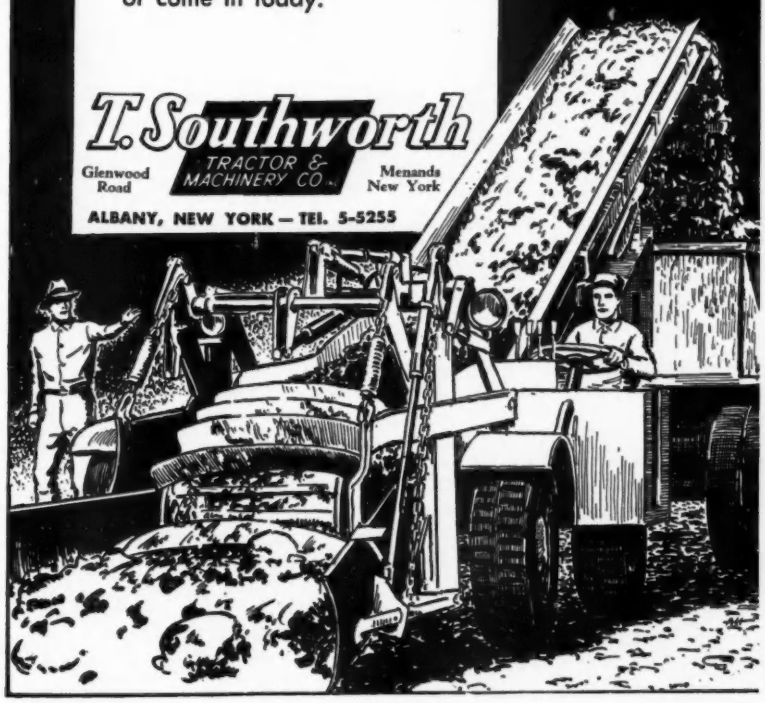
Bargain Price $22 ea. F.O.B South Milwaukee

Bucyrus-Erie Co.
South Milwaukee, Wis.

MODEL LOADER

. . . for any loading job. The ATHEY model 3 Force Feed Loader incorporates fast 1-lane operation and clean pick-up with top quality construction. For information or a demonstration, write, phone or come in today.

T. Southworth
TRACTOR & MACHINERY CO.
Glenwood Road — Menands New York
ALBANY, NEW YORK — TEL. 5-5255



New trade literature

Title: "Engineering Contracts & Specifications"
Subject: The new and revised edition of Robert W. Abbett's book, "Engineering Contracts & Specifications," is now available.

New material on construction insurance, elements of the specifications, principles of specification writing and assembling the specifications is now included in the volume. In addition, the sections on legal considerations, competitive-bid contracts, pre-qualification of contractors and arbitration have been thoroughly revised so that all the information contained in the book is completely up to date. As in the earlier edition, contract procedure is mapped out along the line of private practice although, at each step, the author examines the comparative government procedure.
Where to Get: John Wiley & Sons, Incorporated, 440 Fourth Avenue, New York 16, New York (Price $3.75).

Title: Symposium on Load Tests
Subject: A publication of seven technical papers and a general discussion on load tests to measure the bearing capacity of soil masses, this book represents the most complete compilation of recent information on the subject in one reference. The 148-page book is profusely illustrated with photographs and graphs.
Where to Get: American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pennsylvania. Ask for the April, 1948, "Symposium on Load Test of Bearing Capacity Soils." (Price, $3.00).

Title: Department of Interior Report
Subject: A 400-page book outlining the Department of Interior report on the development of land and water resources of the Columbia River for irrigation, power production and other uses is being distributed by the Bureau of Reclamation. Complete with numerous maps, charts, and photographs, the publication presents both an immediate program leading to full development of the area and the procedure for attaining that goal.
Where to Get: Write to Information Division, Bureau of Reclamation, Box 937, Boise, Idaho. (Free)

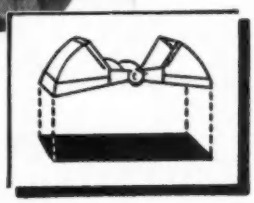
Title: Diesel Engine Booklet
Subject: A new 24-page, illustrated booklet just issued presents the design features, specifications and work capacities of International Diesel engines. Six engines, from the 39 hp UD-6 to the new 180 hp UD-24 are described, shown stripped and with various attachments. Easy reference comparative tables are also included.
Where to Get: Industrial Power Division, International Harvester Company, 180 North Michigan Avenue, Chicago 1, Illinois. Ask for Form No. A-54-LL, "International Diesel Engines and Power Units." (Free)

Title: Electric Plant Catalog
Subject: A 20-page, two-color booklet, this catalog contains descriptions of the complete line of Onan electric plants. It gives instructions for choosing the proper type, size and starting method, as well as statis-

(Continued on page 56)

ERIE *Barge Type* Bucket

In this type the large deck area achieved means bigger payloads in stock piling and barge rehandling work. Erie's booklet on 2-line buckets gives you complete data on this type and 3 other classes of Erie Buckets. Write for copy today.



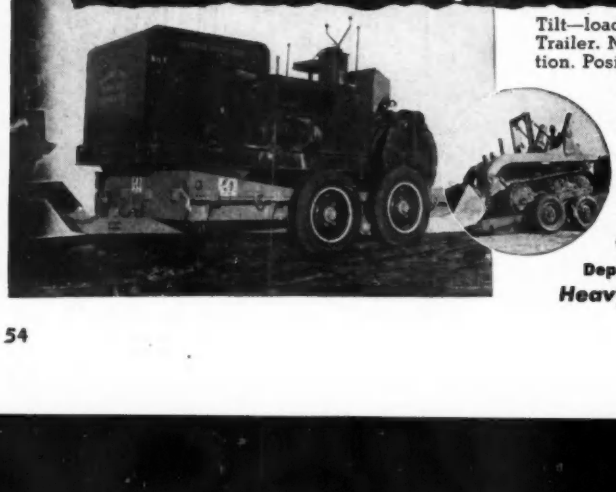
Compare DECK AREA

¾ Yd.	27.21 Sq. ft.
1 Yd.	30. Sq. ft.
1¼ Yd.	32.3 Sq. ft.
1½ Yd.	38.7 Sq. ft.
1¾ Yd.	42.4 Sq. ft.
2 Yd.	45.1 Sq. ft.
2¼ Yd.	53.5 Sq. ft.
2½ Yd.	57.6 Sq. ft.
3 Yd.	60.9 Sq. ft.

Write for Catalog 2L-1 *Today*

ERIE
STEEL CONSTRUCTION COMPANY
4812 GEIST ROAD • ERIE, PENNSYLVANIA

save time between jobs with JAHN TILT TRAILERS



Tilt—load—and you're off in a matter of minutes with a Jahn Tilt Trailer. No jacks or loading ramps required. One-man operation. Positive, automatic safety lock holds platform in position when loaded or empty. Rubber mounted drawbar absorbs road shocks and protects both truck and trailer. Ideal for transporting tractors—rollers—compressors—shovel-loaders—mixers, etc. Jahn Tilt Trailers are available in 8 ton capacity tandem axle and 5 ton capacity single axle models. Write for specifications and illustrated bulletin or see your nearest Jahn distributor.

JAHN TRAILERS ALL OVER THE WORLD

C. R. JAHN COMPANY
Dept. 49—1106 W. 35th Street, Chicago 9, Illinois
Heavy duty Trailers from 5 to 100 tons

TO ADVERTISE: All advertising in this section is payable in advance. Rate: 60c per line, or $7.20 per inch of 12 lines. Minimum charge $2.40. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date — 15 of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

Used Marion Model 4161 dragline, 110 ft. boom, 4 yd., central location. Box 3292

FOR SALE
2½-yd. P & H Electric Shovel, Model 1225

This shovel has a 3-yard bucket and is in very good mechanical and electrical condition.

Shovel can be demonstrated under power.

Electrical equipment: 3 phase, 60 cycle, 2300 volts.

Good selection of new parts to be sold with shovel.

JOHNS MANVILLE PROD. CORP.
Lompoc, California

Northwest 95 3-yd. dragline. Shovels 1; 1¼; 1½ yd. Northwest No. 6.
A. W. Nevers **Mt. Pleasant, Iowa**

One B-2 Erie steam dragline or any part. In good condition.
FRED A. METT
6721 Windsor Mill Road **Baltimore 7, Md.**

Bucyrus-Erie 10-B shovel, dragshovel and dragline. Also Bucyrus-Erie 10-B shovel, dragshovel, dragline without bucket or fairlead. Box 3296

2—50-B steam shovels for sale. For particulars write:
New York Trap Rock Corporation
230 Park Avenue **New York City 17, N. Y.**

New independent diesel driven electric generating plant, 650 H.P. diesel engine, 420 K.W., 2300 volts, 3 phase, 60 cycle generator, mounted on rubber-tired special trailer. Located in Central Nebraska. Box 3277

One Bucyrus-Erie 29-T blast hole drill with approximately five years' service; suitable for drilling 6" to 10" diameter holes with 38' steel derrick, full caterpillar mounting and built-in tool wrench. Can be offered with either electric motor for 3 phase 60 cycle, 440 volt power or with gasoline engine drive. Drill in A-1 condition and priced reasonable for immediate delivery. Located in Ohio. Box 3298

1—New Ingram 504 stiff leg derrick, 4 ton, 300° swing, 50' boom, Case engine. $3,000.

1—BG Cletrac with Sargent overhead shovel. $3,800.

1—Keystone 1 yd. skimmer scoop on tracks and wheels—good working condition. $1,800.

1—AC Model S bulldozer. $3,500.

1—Athey 6-ton logging trailer on forged track wheels. $1,200.

1—International TD14 tractor with bulldozer. $4,000.

T. Southworth Tractor & Machy. Co., Inc.
Glenwood Road, Menands
Albany **New York**

LOW BED TRAILERS
Used; 20, 25, 30 tons. Semi or Full.
40 & 50 tons—16-8.25x15 tires.
The above jobs in very good condition.

HUGHES NEW TRAILERS
15-100 Tons—Semi or Full

MURRAY A. CLARK
Box 426 **13 Ewan Terrace**
Phone: 7-1009 **Vineland, N. J.**

ALL-STEEL DERRICKS

10—30 ton capacity BRAND NEW Wiley all steel stiffleg derricks, 32' masts, 60' booms, complete; can furnish with gasoline, electric or steam hoists.

ALSO

Air compressors, bins, boilers, cable, conveyors, cranes, crushers, engines, hammers, cone. mixers, light plants, pneumatic tools, pavers, pumps, saw rigs, welders.

EQUIPMENT CORPORATION of AMERICA

CHICAGO 12 1170 S. Washtenaw Av.
PHILADELPHIA 2 1505A Race St. Schaff Bldg.
PITTSBURGH 30 P.O. Box 9330
NEW YORK 7 300 Church Street

8 yd. diesel walker dragline.
6 yd. diesel walker dragline.
1½ yd. diesel shovel & dragline.
3 ft. cone crusher. No. 7½ K Gates.
Sauerman scraper hoist, 1½ to 2 yds.
Wanted: Offers of good used items.
James Wood, 53 W. Jackson, Chicago 4, Illinois

FOR SALE
1—5 c. y. clamshell bucket
1—5 c. y. dipper or shovel bucket
Each is lightweight @ 8,000 lbs.; one with 3 mos. use, other is new.
Box 3297

Surplus Swivel Hook Double Sheave Block
1 40 ton "American" 24" swivel hook double sheave block, diamond pattern with cast steel sheaves grooved for ⅞" rope. Sheaves to be bushed with plain bronze bushings, with center bored sheave pin and ¼" Alemite hydro grease fitting No. 1980 equipped with 300 lb. cheek weights and 5½" swivel hook. Total weight of block 1190 lbs. Dwg. BEFP 1-M-6560.
BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Two 3¼ cubic foot ladder dredges, one electric and the other diesel driven, sectionalized construction, well maintained, immediately available. Western location. Box 3294

FOR SALE

- **Two Euclid dump trucks, new 1943; equipped with 10-yd. bodies, Cummins Diesel engines.**
- **One Northwest shovel and crane Model 104, equipped with 1½-yd. bucket, 40-ton boom.**

One Model W5 Allis-Chalmers tractor with Baker bulldozer.

KLATZKY BROTHERS
NEWBERRY, MICHIGAN

SURPLUS STOCK SALE
Dippers for Bucyrus-Erie Shovels
1—½ cu. yd. drag shovel dipper—17-B.
2—⅝ cu. yd. drag shovel dippers, 18-B.
1—2 cu. yd. rock dipper 75-B.
New Dragline Buckets
2¼ yard Red Arch Type AX medium duty bucket.
5 yard Red Arch Type AY heavy duty bucket.
6 yard Red Arch Type AY heavy duty bucket.
F.O.B. Works
Write for any further information desired
BUCYRUS-ERIE COMPANY
Parts Department
South Milwaukee **Wisconsin**

USED 18" OR 20" ELECTRIC HYDRAULIC DREDGE. MID-WESTERN LOCATION.
BOX 3251

MECHANICS • HOME STUDY

Step up your own skill with facts & figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in handy form. Fully illustrated. Easy to Understand. Highly Endorsed. Check book you want for 7 days' Free Examination. Send no Money. Nothing to pay postman. ☐ Carpentry $6 • ☐ Auto $4 • ☐ Oil Burners $1 ☐ Sheet Metal $1 • ☐ Welding $1 • ☐ Refrigeration $4 ☐ Plumbing $6 • ☐ Masonry $6 • ☐ Painting $2 • ☐ Radio $4 ☐ Electricity $4 • ☐ Mathematics $2 • ☐ Steam Engineers $4 ☐ Machinist $4 • ☐ Blueprint $2 • ☐ Diesel $2 • ☐ Drawing $2.
If satisfied you pay only $1 a month until price is paid.
AUDEL, Publishers, 49 W. 23 St., New York 10, N. Y.

(Continued on page 56)

For Sale

(Continued from page 55)

Bucyrus-Erie No. 8 bit dresser. Complete and in perfect operating condition. Located in Washington State. Box 3271

WANTED: High Lift shovels for coal stripping. Box 3284

POSITIONS WANTED

Dragline crane operator with 28 years experience building, repairing and operating gas, diesel, steam and electric machines including Bucyrus-Erie, Northwest, Bay City and other makes. Has worked overseas. Willing to go anywhere in the world on long job that would enable wife to accompany him. Box 3291

New Trade Literature

(Continued from page 54)

tics on watts required by appliances and motors.

Where to Get: D. W. Onan and Sons, Inc., Advertising Department, Minneapolis 5, Minnesota. Ask for Onan Electric Plants Catalog, Form A-138A. (Free)

Title: **Construction Pump Bulletin**

Subject: Seventeen different series of self-priming centrifugal pumps and three series of diaphragm pumps especially designed for use in construction work are described in a new 12-page, 2-color bulletin just released by Marlow Pumps.

The bulletin contains performance tables stating pump capacities in gallons per minute at heads from 15 to 110 feet for the low-pressure and 40 to 280 feet for the high pressure self-priming centrifugals. Complete specifications are given for the Marlow Mud Hog diaphragm pumps together with outstanding features that enable these pumps to handle exceptionally thick and trash-laden liquids.

Where to Get: Marlow Pumps, 563 Greenwood Avenue, Ridgewood, New Jersey (Free).

Title: **Concrete Piles and Caissons**

Subject: This four-color catalog shows how several types of cast-in-place concrete piles and caissons are installed and their function in use. Featured are button-bottom piles, pedestal piles, compressed piles and special uses of composite piles of wood and concrete.

Where to Get: Western Foundation Corporation, Two Park Avenue, New York 16, New York. (Free)

Title: **Pile Hammer Bulletin**

Subject: Newly revised, with additional information and illustrations, McKiernan-Terry bulletins on double-acting pile hammers and extractors are now available. The bulletin has a new section of operating instructions, revised specifications and a new page of anvils and base attachments.

Where to Get: McKiernan-Terry Corporation, 15 Park Row, New York, New York. (Free)

Title: **Motor Scraper Movie**

Subject: A new color-sound movie, "Profit Report," has recently been released showing various job applications of the LaPlant-Choate Motor Scraper TS-300.

Where to Get: The movie can be viewed at the distributors of LaPlant-Choate Manufacturing Company, Incorporated, Cedar Rapids, Iowa. It is also available on loan to schools, churches and clubs.

Title: **Welding Hose Pamphlet**

Subject: Simple and quick methods of installing Hewitt Rubber's "Twin-Weld" welding hose are told in this new bulletin recently released. It explains the handling, safety and operation achieved with Twin-Weld hose. This hose is a "double-barreled" unit, made up of two lines of cord-reinforced welded hose molded side by side in one complete unit.

Where to Get: Hewitt Rubber Division, Hewitt-Robins Incorporated, Buffalo 5, New York.

Title: **P & H Soil Stabilizer Bulletin**

Subject: A new two-color bulletin describing the P & H Single Pass Soil Stabilizer has just been published. Containing more than a dozen pictures showing the machine on the job processing both soil-cement and soil-bituminous roads, streets, and airports, the booklet also illustrates the various features and operations of the stabilizer.

Where to Get: Harnischfeger Corporation, 4400 West National Avenue, Milwaukee 14, Wisconsin. Ask for Bulletin No. S6-1 (Free).

Title: **Crane Carriage Booklet**

Subject: This new four-page, two-color bulletin features short wheelbase crane carriages.

Standard dimensional data are given for all models as well as general specifications.

Where to Get: Six Wheels Incorporated, 1584 E. Twentieth Street, Los Angeles 11, California. Ask for Bulletin CC-5-SW (Free).

Title: **Mining Tool Catalog**

Subject: This two-color 25-page catalog covers the line of Kenmetal Mining Tools. Featured in the book are: seven types of mining machine bits, six sizes of percussion rock bits, a line of solid head rotary drills and line of finger bits for drilling overburden.

Tools are attractively illustrated, and specifications are included.

Where to Get: Kenmetal, Incorporated. Latrobe, Pennsylvania (Free).

Title: **"HD-5" Tractor Catalog**

Subject: This 24-page catalog, featuring the Allis-Chalmers HD-5 crawler tractor, has just been released.

The booklet gives first attention to the HD-5's A-frame track stabilizer design. Photographs and cutaway views illustrate the unit's track release mechanism, positive sealed truck wheels, tapered roller bearings, and other features.

Where to Get: Allis-Chalmers Manufacturing Company, Tractor Division, Milwaukee 1, Wisconsin (Free).

ATTENTION:

Army Truck Owners

We have the parts for your army trucks.

Fill out and mail the attached coupon for free "Parts and Price Lists."

Wm. O. Hensley Truck Parts, P.O. Box 747, Phone Crawford 3734, 904 Poplar St., Terre Haute, Ind.

MAIL FREE PARTS AND PRICE LISTS TO

Firm .....

Street .....

City..... **State**.....

WE OPERATE THE FOLLOWING ARMY TRUCKS

.....**Jeep** .....**Chevrolet 1½ ton 4x4**

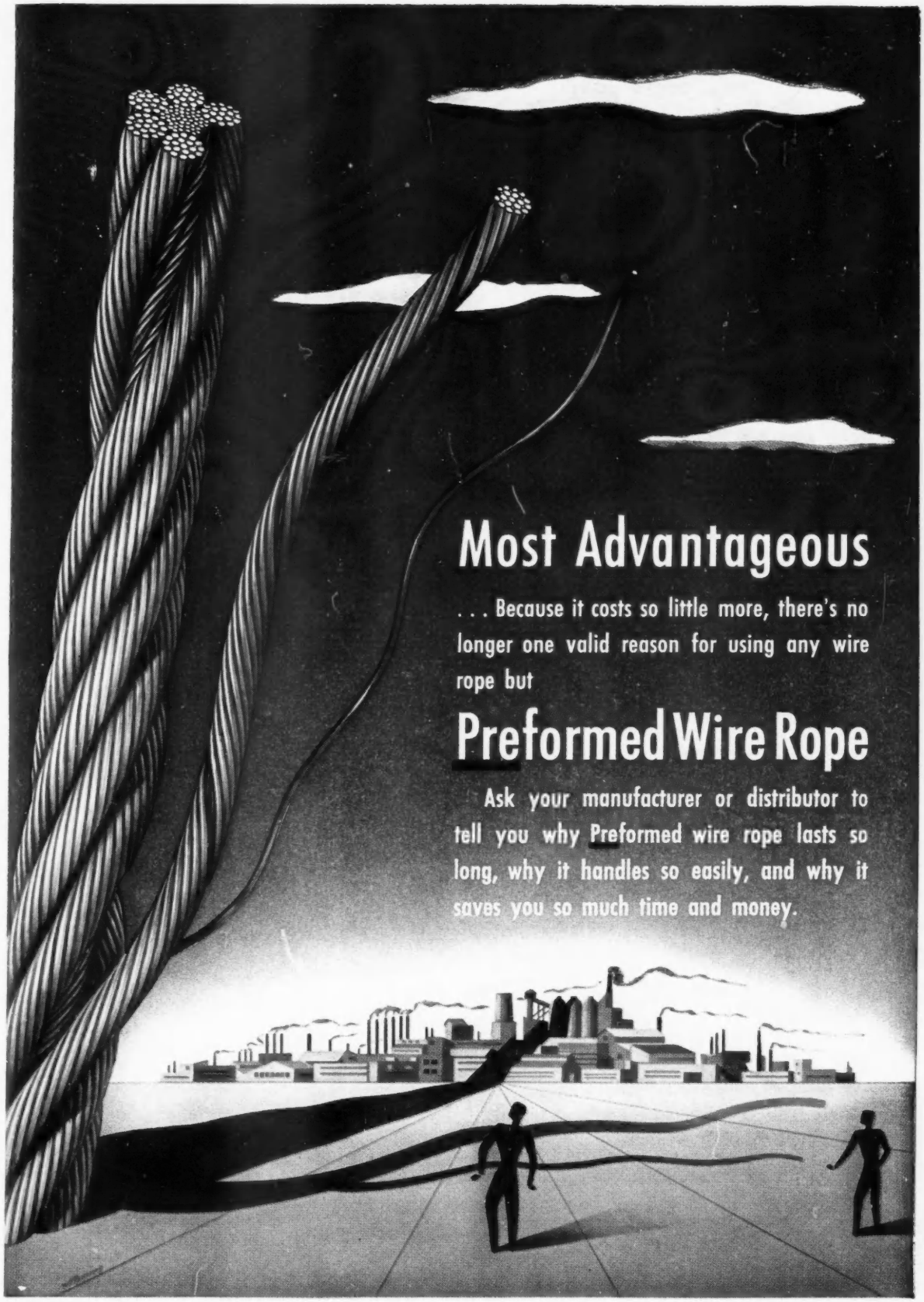
.....**Dodge ½ — ¾ — 1½ ton 4x4 (Circle Capacity)**

.....**GMC 2½ ton 6x4 or 6x6 Banjo Type Axle**

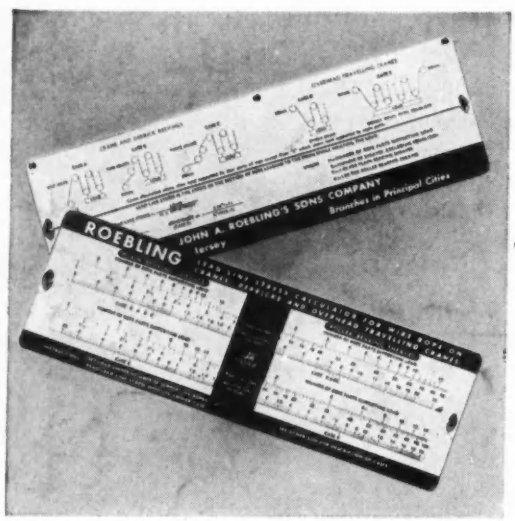
.....**GMC 2½ ton 6x4 or 6x6 Split Type Axle**

.....**Studebaker or Reo 2½ ton 6x4 or 6x6**

.....**International M-5H-6 2½ ton 6x6**


Most Advantageous
. . . Because it costs so little more, there's no longer one valid reason for using any wire rope but
Preformed Wire Rope
Ask your manufacturer or distributor to tell you why Preformed wire rope lasts so long, why it handles so easily, and why it saves you so much time and money.

Confidence- WITH ITS SLEEVES ROLLED UP!



YEAR BY YEAR, planes grow bigger . . . faster and safer. Man has unbounded confidence in his ability to build better and better planes. Never satisfied, he experiments and tests tirelessly, and aviation progresses.

With similar vision and confidence, Roebling has been pacemaker in the development and manufacture of products essential to the transportation and other industries. The active, widespread confidence it has won among technical men and operators throughout industry is Roebling's proudest asset. Look to Roebling for continued leadership . . . continual improvement in its products and engineering . . . continual progress.

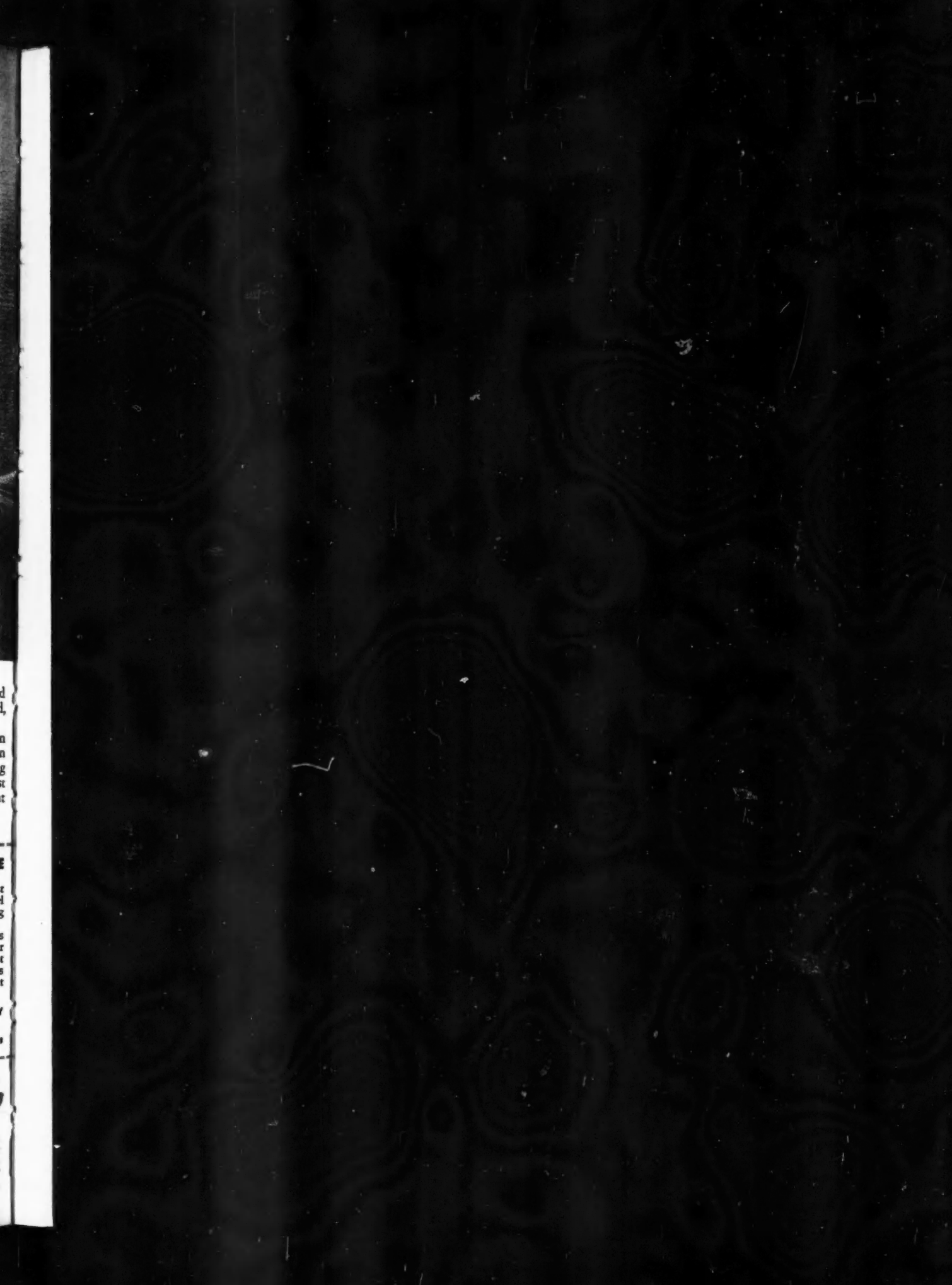
WHAT SIZE OF ROPE? HERE'S YOUR ANSWER—FREE

DATA used by Roebling engineers themselves are embodied in this unique "slide rule". It's the Roebling Lead Line Stress Calculator for wire rope . . . tells you in a moment the safe and economical size of rope for every load . . . gives the right answer for all types of crane, derrick, and overhead traveling crane installations.

Here's information you can accept and act upon with complete confidence . . . just as you can specify Roebling "Blue Center" Steel Wire Rope for unsurpassed toughness, dependable reserve strength and the reduction of costly replacement shut-downs. Roebling was America's first wire rope maker, and "Blue Center" Steel Wire Rope is the finest that Roebling knows how to make.

Write for a Roebling Lead Line Stress Calculator — it's free. And let your Roebling Field Man tell you about installation and maintenance practices that prolong wire rope life. Call him at your nearest Roebling branch office.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON 2, NEW JERSEY
Branches and Warehouses in Principal Cities

A CENTURY OF CONFIDENCE ROEBLING

★ *WIRE ROPE AND STRAND* ★ *FITTINGS* ★ *SLINGS* ★ *SUSPENSION BRIDGES AND CABLES* ★ *AIRCORD, AIRCORD TERMINALS AND AIR CONTROLS* ★ *AERIAL WIRE ROPE SYSTEMS* ★ *ELECTRICAL WIRE AND CABLE* ★ *SKI LIFTS* ★ *HARD, ANNEALED OR TEMPERED HIGH AND LOW CARBON FINE AND SPECIALTY WIRE, FLAT WIRE, COLD ROLLED STRIP AND COLD ROLLED SPRING STEEL* ★ *SCREEN, HARDWARE AND INDUSTRIAL WIRE CLOTH* ★ *LAWN MOWERS*